

# **LUPTON**

## **STEEL PRODUCTS**

**1931**

**Sales Representative**

**DAVID LUPTON'S SONS COMPANY**

**Allegheny Ave. & Tulip St.  
PHILADELPHIA**



# ADDITIONS *and* CHANGES

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Since the printing of the 1930 SWEET'S ARCHITECTURAL CATALOGUE and with the printing of the present issue a number of modifications have been made both in the products described and the method of presentation. In order to avoid confusion which might result from using information taken from old catalogues we are directing attention to the important changes and additional information presented in the 1931 Catalogue.

The following products not described fully in previous issues of SWEET'S CATALOGUE are described in this issue.

- Casements—Underwriters' Type
- Casement Doors
- \*Aluminum Casements
- Aluminum Windows—Industrial Type
- Commercial Projected Windows equipped with explosion releasing device
- Corrugated Wire Glass Construction
- Utility Window

\*This information supersedes that given in the catalogue "Aluminum Windows by Lupton" in the matter of hardware. Hardware for Aluminum Windows is now made of white bronze instead of aluminum.

Products in which modifications or changes have been made since previously issuing SWEET'S are listed below with the more important changes.

## **Steel Casements for Standard Size Openings (Projected Casements)**

Catalogue numbers of standard units have been changed.  
Methods of applying screens are shown.

## **Residence Casements**

Additional installation details shown.  
Screening details added.  
A new ventilating unit shown for use at sill.  
Methods of applying shade brackets shown.  
Glass sizes in units 4426TH4 and 4528TH4 have been changed.

## **Basement Windows**

Sizes are now shown for actual opening required instead of overall size of unit.

## **Double Hung Windows**

New improved type sill weathering has been made standard to give additional assurance of weathertightness.  
Catalogue numbers of standard units have been changed.

## **Architectural Projected Windows**

Both inside glazed and outside glazed windows now have the same type of section for frame member and are therefore interchangeable. Wall details, glass sizes, etc., are the same for both types.  
Catalogue numbers of standard units have been changed.  
Data for Commercial Projected and Pivoted Windows has been revised and rearranged and new wall details added.

## **Operating Devices**

Limits are given for Lupton Rack and Pinion Operator applied to Lupton Continuous Windows.

## **Industrial Doors**

New improved weathering for slide doors permits a slightly wider opening and increases weathertightness.

## **Airplane Hangar Doors**

Doors are now made to fit openings with widths in multiples of 10 ft.  
New overhead roller uses single angle track.

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# DAVID LUPTON'S SONS CO.

All Types of Steel Windows, Window Operating Devices, Skylights, Steel Doors and Partitions, Steel Shelving and Factory Equipment

Allegheny Avenue and Tulip Street  
PHILADELPHIA, PA.

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NEW YORK, N. Y., DAVID LUPTON'S SONS Co., 8 Murray Street  
PHILADELPHIA, PA., DAVID LUPTON'S SONS Co., 801 Integrity Building  
PITTSBURGH, PA., DAVID LUPTON'S SONS Co., 1625 Grant Building  
WASHINGTON, D. C., DAVID LUPTON'S SONS Co., 15th and H Streets, N. W.

Member Solid Section Steel Window Industry (see Manufacturers' Index)

# LUPTON

WHERE STEEL IS FUSED WITH SINCERITY

## LUPTON SERVICE

### General

Lupton Service is maintained to assist you in solving your problems in daylighting and natural ventilation. We will welcome the opportunity to work with you in submitting tentative designs showing practical application of our steel windows, operating devices and skylights.

By careful study and research we have established economies in manufacturing processes, new window designs and methods of control, a broad standardization of our products and new building designs to meet requirements of various industries so that good ventilation and daylight may be provided for any size building floor area.

In the following pages we present information concerning our products, to assist you in the preparation of details and specifications. Irrelevant matter has been eliminated. Text is used to supplement drawings only where it is necessary to give a clear idea of construction or application of our products.

Details are typical, showing construction and general principles underlying satisfactory installation.

Lupton Products are designed to give full investment value and to this end we offer our service and co-operation in whatever degree required to obtain satisfactory results in the natural daylighting and ventilating of your buildings.

### Erection Service

Where preferred, we will erect any of our products, but stock items such as Pivoted, Basement and Residence Casement Windows are usually more economically erected by the general building contractor.

All other Lupton Products, however, because of their special application should be erected by our own forces to insure satisfactory installation and service.

There is an erection specification prepared for each product which should be exactly followed and which will secure satisfactory use of product at reasonable cost.

### Glazing

Glazing should be done by experienced steel window glaziers. We suggest that glazing of Pivoted, Basement,

Commercial and Architectural Projected and Residence Casement Windows be handled by others. However, we will arrange for glazing of any of our products when this is preferred. When glazing, the glass should be bedded in putty to form a watertight seal and to prevent glass touching metal.

### Putty

Always specify steel window putty for glazing steel windows. Ordinary putty intended for wood windows will not be satisfactory as it dries hard and cracks away from steel. Because various climates require variations in the ingredients of satisfactory putty, we recommend that putty be obtained from local sources. When this is impossible, putty may be secured from the Lupton Company or its sales representatives.

### Calking

See calking specification for each product. The calking cement furnished by Lupton is elastic, dark gray in color, and will not stain masonry. When Lupton applies calking, application is for weathertightness only and is understood not to be a finished pointing job. Erector spreads cement on edge of window and strikes off excess after window is set in place.

### Painting

All Lupton Products are given a shop coat of paint before shipment. After glazing, no painting should be done until putty has set (about three weeks). It is advisable to hold the painting contractor responsible for cleaning plaster or other foreign matter from the weathering surfaces of the windows in order that it may not be painted over and cause imperfect contact.

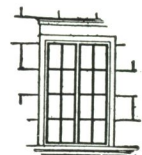
### Listing

To insure accurate estimates, all products should be accurately listed and located either in schedules on plans or in specifications. If more than one type of product or type of hardware is desired, each type should be separately listed and located or otherwise clearly designated.

*A special is an odd size between two less expensive standards*



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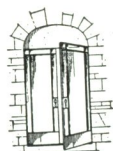
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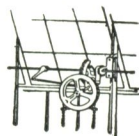


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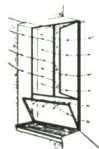
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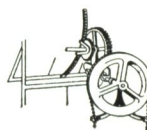
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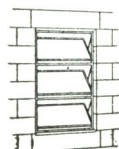
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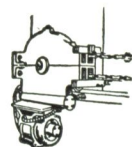


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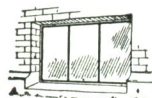


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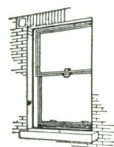
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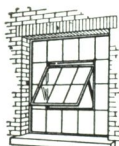
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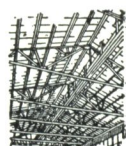
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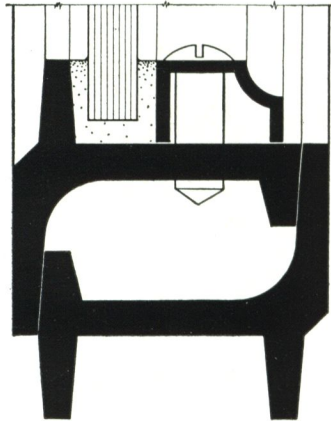
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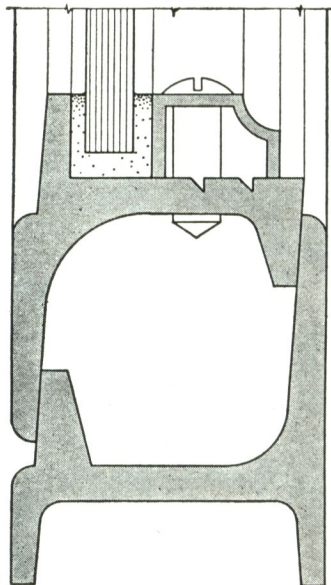
## LUPTON CASEMENTS

The several types of casements here illustrated have been developed by Lupton to meet the varying requirements of modern building construction. Their distinctive appearance, durability and continued ease of operation appeal to architect, owner and tenant. Lupton Casements are made by

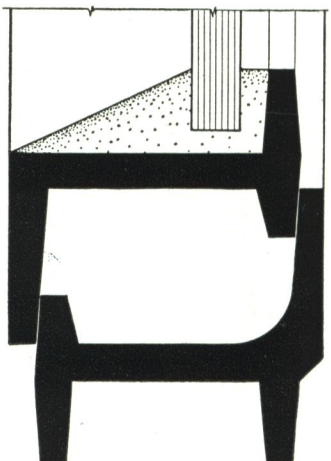
skilled craftsmen, experienced in casement work and familiar with the high degree of perfection required in this type of window. The fine quality implied when casements are specified is assured by rigid inspection and close adherence to manufacturing standards.



LUPTON STEEL  
CASEMENTS  
(HEAVY TYPE)



LUPTON  
ALUMINUM  
CASEMENTS



LUPTON STEEL  
CASEMENTS  
(PROJECTED TYPE)  
IN STANDARD SIZES

### Lupton Casements (Heavy Type)

Casements for distinctive buildings, meeting the most exacting requirements, built to sizes and designs specified by the architect.

Various types of ventilator operation and maximum sizes are given on page 5. Large windows are built up from these smaller units, sometimes using steel plate frames described on pages 13 and 14. Casement doors of this type are described on pages 18 to 21.

### Lupton Aluminum Casements

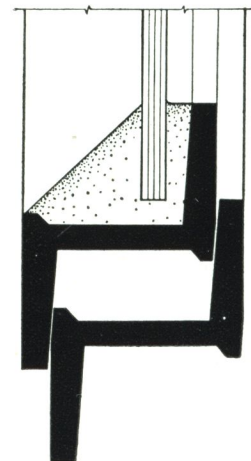
Casements made of a non-corroding alloy, which never needs painting and with a natural color quite in the spirit of modern decoration. Made in sizes and designs specified by the architect. Inside glazing is recommended.

### Lupton Projected Casements

Designed chiefly for use in office buildings, hospitals and schools. They are made in standard sizes and are outside glazed. All ventilators are equipped with the Lupton projected movement which allows cleaning of glass from within the building, and eliminates stay bars and sliding adjusters.

### Lupton Residence Casements

Casements made in standard and stock sizes for use in residences or apartments or wherever a casement type window is required in smaller size openings. Sturdily built of one piece steel sections, readily screened and shaded. Standard units have trim slender muntins dividing the window into lights of pleasing proportions. Muntins however may be omitted if it is desired to use leaded glass.



LUPTON STEEL  
RESIDENCE  
CASEMENTS

TYPICAL FULL SIZE SECTIONS



## CASEMENT GLAZING

To assure satisfactory service, weathertightness, and neat appearance, glazing should be done by experienced glaziers, using special steel window putty. (See page 1.)

### Glazing Side Hinged Casements

All side hinged vents will eventually sag and rub on the bottom frame rail unless the following correct glazing method is used:

1. Check casement to see that vent seats properly and that outer frame has not been twisted or sprung in masonry opening.

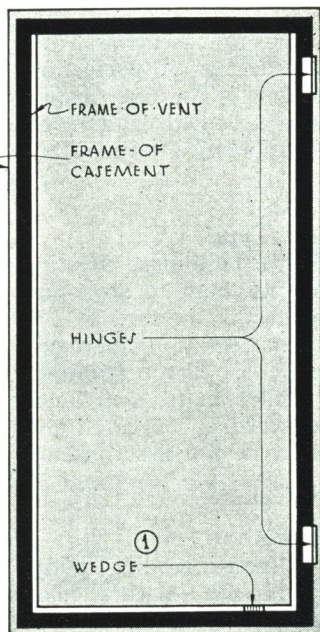
2. Bed vent frame with putty.\*

3. Set wood wedge and glass in position in vent frame as shown in Sketch "A."

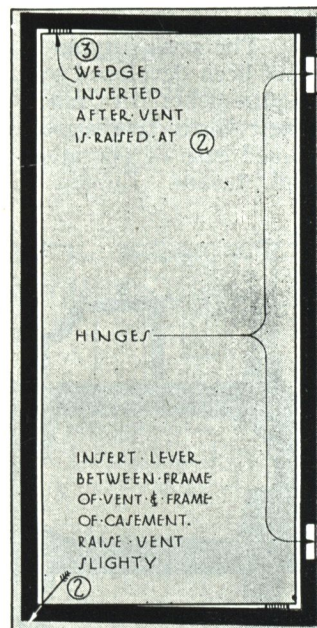
4. Open and close vent several times to seat glass.

5. Open the vent slightly and with a chisel or other lever placed between bottom of vent and frame of window at point (2) Sketch "B" spring entire vent upward. This will open up the space between vent and glass at point (3) Sketch "B." Insert another wood wedge at point (3) before pressure is released on lever.

6. Wedges must be tight and are left permanently in place. Puttying can now be completed or glazing beads attached.



SKETCH "A"



SKETCH "B"  
(EXAGGERATED)

### Inside Glazing

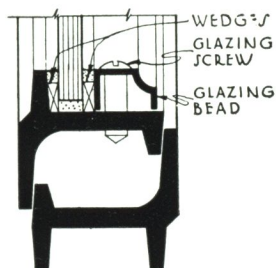
Glass should be bedded in putty\* and small wooden wedges inserted to prevent squeezing out putty due to pressure on glass.

Glazing stops are carefully fitted and attached in our shop. When glazing, care should be taken to get each piece of moulding back in its original position.

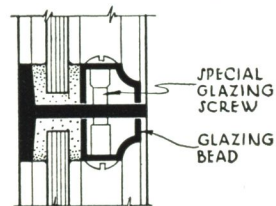
Several types of glazing beads are available for steel casements. All have the same overall dimensions. Standard type (Sec. 377) is cold rolled from 16 gauge steel.

Alternate types are, a hot rolled steel bead (Sec. 379) retaining the advantages of a solid bead without needless weight; and an extruded bronze bead (Sec. 380). An extruded bronze bead (Sec. 378) with a channel in its upper surface for collecting condensation may be had if desired, but usually is unnecessary.

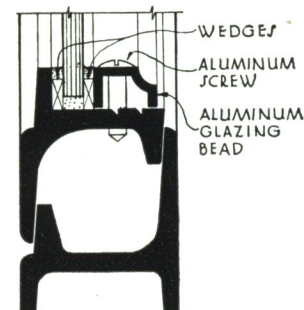
Aluminum casements have aluminum beads fastened with aluminum screws.



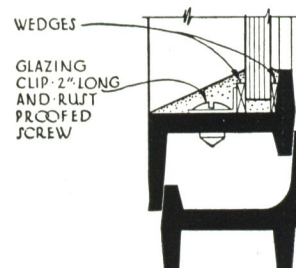
STEEL-CASEMENT  
INSIDE-GLAZED



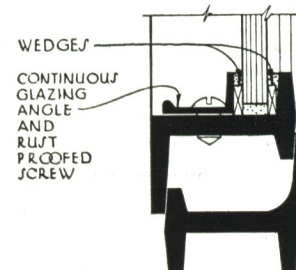
CASEMENT  
MUNTIN



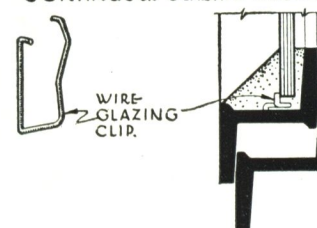
ALUMINUM  
CASEMENT



STEEL-CASEMENT  
OUTSIDE-GLAZED



STEEL-CASEMENT  
OUTSIDE-GLAZED-WITH  
CONTINUOUS-GLAZING-ANGLES



RESIDENCE-CASEMENT  
OF-STEEL

### Outside Glazing

Glass should be bedded in putty\* and small wooden wedges inserted to prevent squeezing out of back putty. Glazing angles or clips should then be attached and face putty carefully applied and beveled so as to preserve even sight lines.

When continuous glazing angles are specified for outside glazing they are cut to standard lengths and shipped unattached. Slotted holes are provided to permit adjustment. All screws are rustproofed.

Outside glazing is not recommended for aluminum casements.

### \*Putty

(See page 1.)

### TYPES-OF-GLAZING-BEADS

Scale - 3" = 1' - 0"

STEEL

BRONZE



SEC  
377



SEC  
379



SEC  
380



SEC  
378



# LUPTON STEEL CASEMENTS—HEAVY TYPE

See Pages 7 and 8 for Hardware

Lupton Casements are designed for use in monumental buildings, educational buildings, public libraries, banks, fine residences, club houses, first class hotels and office buildings and all other buildings of the same general character. Lupton Casements are the high-

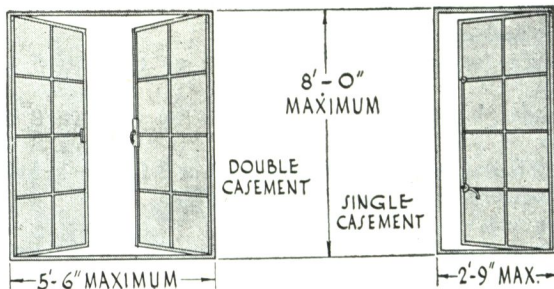
est form of steel window construction and are made in sizes specified by the architect. Pages following list various types of ventilator operation and show construction details. Lupton will gladly co-operate by submitting tentative designs and finished drawings.

## Side Hinged Casements

Swing-out casements are recommended in preference to swing-in or vertically pivoted casements. In addition to their superior weathering, they do not interfere with draperies when open.

Hinges are bronze butts or malleable iron friction hinges, as specified.

Single casements and double casements with fixed meeting stile have locking handles. Double, folding casements (illustrated) have exposed or concealed cremone bolt. Sliding adjusters are used if friction hinges are not specified.

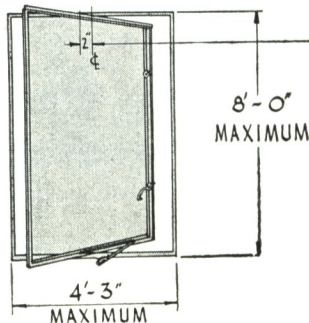


## Vertically Pivoted Casements

Not recommended, except where width desired is too great for side hinged casement.

Pivot is usually placed 2 in. off center. Pivot may be nearer jamb but this reduces maximum size.

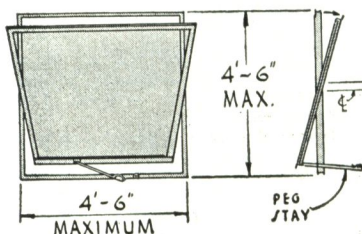
Casements are usually equipped with locking handles and peg stays.



PIVOT IS USUALLY... LOCATED 2 INS. OFF-CENTER LINE OF CASEMENT. IF PIVOT IS LOCATED AT A GREATER DISTANCE FROM  $\phi$ , THE MAXIMUM ALLOWABLE SIZE OF CASEMENT IS REDUCED. PIVOT MAY BE LOCATED ON  $\phi$  IF THERE IS NO VERTICAL MUNTIN AT CENTER.

## Horizontally Pivoted Casements

Usually used for transoms or as ventilating units in large windows where casement operators described on pages 21 to 25 are used. When hand operated, top and center pivoted casements within reach are equipped with peg stays. Bottom pivoted may have spring catch or cam handle and friction stays.



PIVOT LOCATED 2" ABOVE CENTER OF CASEMENT. PIVOT MAY BE LOCATED 4" DOWN FROM TOP OR 4" UP FROM BOTTOM.

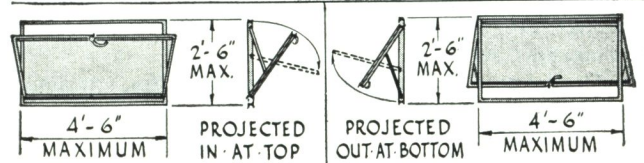
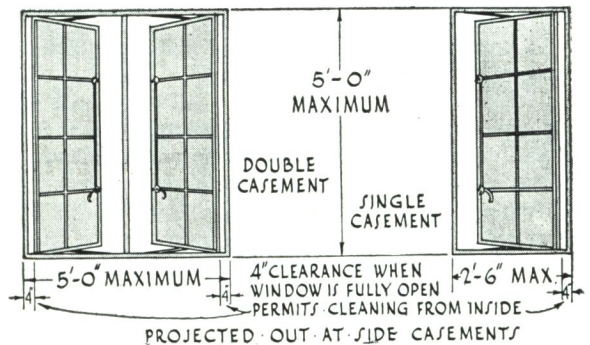
## Projected Casements

Made in 3 types as illustrated. Adjustable bronze friction device holds casement open at any angle without stay bars, etc.

There is no protruding hinge, yet both sides of glass can be cleaned from inside the building. Can be readily screened and shaded.

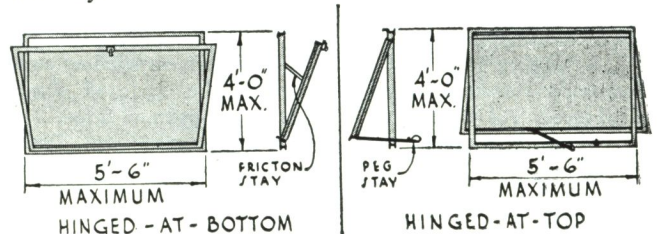
Out-at-side type have locking handles. Double casement must have fixed meeting stile.

Out-at-bottom and In-at-top types are usually used for transoms, but may be placed one above another to form a large window. Operation is by locking handles or spring catches. Cannot be used with mechanical operators.



## Top Hinged and Bottom Hinged Casements

Used as transoms and with mechanical operators described on pages 21 to 25. When hand operated, top hinged casements have stay bar; bottom hinged casements have spring catch or locking handle and friction stay.



## General

Fixed units may be of any size within practical, required limits.

Casements may be inside or outside glazed.

Casements may be had with or without muntins.

Units may be combined to form composite windows using mullion and impost bars, or 13 gauge formed steel plate mullions and imposts. See pages 9 to 14.

When viewed from the outside a left-hand casement has hinges on left side and a right-hand casement has hinges on right side.



## SPECIFICATION FOR LUPTON STEEL CASEMENTS—HEAVY TYPE

### Work Included

1. Furnish and install where shown on drawings, Lupton Steel Casements (Heavy Type) as manufactured by DAVID LUPTON'S SONS Co., Philadelphia, Pa.

### Materials

2. Frame and Ventilator members shall be made of copper-bearing, rust-resisting steel specially rolled in solid, one-piece sections. Bars shall be straightened and sand-blasted.

3. Muntins shall be specially designed steel T bar section.

4. Vertical mullions shall be specially designed steel H section.

5. Imposts shall be specially designed steel lug bars.

*Note: Two sizes of lug bars are standard, the width of the section being 4 in. for the large bar and 2½ in. for the small one. The large bar is used for the larger multiple unit casement windows.*

### Construction

6 All casement windows shall be designed for inside glazing, with metal glazing stops. (Specify outside glazing if desired.)

7. All casement windows shall be straight and true, members in alignment and surfaces in a plane.

8. Ventilator and Frame Members shall be mitered at corners and solidly butt welded. Exposed welded surfaces shall be ground flush with members. The frame and ventilator shall form a two-point, flat, continuous, weathering contact.

9. Muntin Bars shall be continuous from top to bottom and from side to side between frame members or ventilator members. They shall be attached to frame members or ventilator members by tenoned, riveted joints and shall be interlocked and welded at their intersections so as not to decrease their ultimate strength.

10. Mullions shall be provided and bolts for attachment wherever two or more units are placed side by side in an opening.

11. Imposts shall be provided and bolts for attachment wherever two or more units are placed one directly above the other in an opening.

12. At the head of all open out ventilators a No. 16 gauge formed steel hot galvanized weather bar shall be used, except when condition necessitates the use of the lug bar, the lug bar shall be bent and used as weathering bar.

*Note: (a) No. 13 gauge steel fins are furnished only when specified, at slight added cost.*

*(b) No. 14 gauge steel sill and jamb anchor clips are furnished only when specified.*

### Glazing Stops

13. Glazing stops shall be of detail shown on window manufacturer's standard drawings and shall be made of drawn rolled steel. All stops shall be accurately coped and fitted.

*Note: See details on pages 15, 16, 17 and 18.*

### Hardware

14. Hinges shall be attached and painted with casements in factory.

*Note: Five types of hinges are available.*

*(a) Solid bronze butt hinges with steel pins.*

*(b) Close up friction hinges of malleable iron.*

*(c) Close up friction hinges of bronze.*

*(d) Extended friction hinges of malleable iron.*

*(e) Extended friction hinges of bronze.*

*See pages 8 and 9. Specify the type desired.*

Hardware listed below shall be fitted in factory, and shipped unattached, carefully packed to prevent damage.

*Note: The following hardware is available, list the types required. Hardware is usually solid bronze but may be malleable iron if desired. Malleable iron is required on Underwriters' casements.*

For Double Casements (Side Hinged—Open Out)

Sliding adjusters (not used with friction hinges).

Cremone bolt (concealed or exposed) and pull handle.

For Single Casements (Side Hinged—Open Out)

Sliding adjuster (not used with friction hinges).

Single locking device (ventilators up to 4 ft. 0 in. in height).

Double locking device (ventilators up to 8 ft. 0 in. in height).

Triple locking device (ventilators over 8 ft. 0 in. in height).

For Double Casements (Side Hinged—Open In)

Sliding adjusters.

Cremone bolt (concealed or exposed) and pull handle.

For Single Casements (Side Hinged—Open In)

Sliding adjusters.

Single locking device (ventilators up to 4 ft. 0 in. in height).

Double locking device (ventilators up to 8 ft. 0 in. in height).

Triple locking device (ventilators over 8 ft. 0 in. in height).

For Vertically Pivoted Ventilators

Peg and stay adjuster.

Single locking device (ventilators up to 4 ft. 0 in. in height).

Double locking device (ventilators up to 8 ft. 0 in. in height).

Triple locking device (ventilators over 8 ft. 0 in. in height).

For Horizontally Pivoted Ventilators

Peg and stay adjuster.

For Projected Ventilators—Projected-Out-at-Bottom

Within reach from floor—Cam handle.

Beyond reach from floor—Spring catch and pull down ring for pole operation.

For Projected Ventilators—Projected-In-at-Top

Within reach from floor—Cam handle.

Beyond reach from floor—Spring catch for pole operation.

### Calking Cement (See page 1)

15. The window manufacturer shall furnish non-staining elastic calking cement (as indicated on window manufacturer's standard details) in quantities sufficient to make head, sill, jams, mullions and impost weathertight. Wooden filler-strips shall be furnished and used where indicated on details.

*Note: Where casements are to bear Underwriters' label, filler strips must be of formed metal.*

### Erection

16. All Casement Windows shall be erected in prepared openings by the window contractor (unless otherwise specified).

17. All Casement Windows shall be set plumb and true, properly aligned and securely anchored before glazing. Mullions and impost shall be bolted securely to frames. Calking cement and filler-strips shall be neatly applied at points indicated on window manufacturer's standard details.

*Note: Include in the masonry specifications that all masonry openings shall be accurately constructed in accordance with the installation details for Casement Windows. All grouting, pointing, etc., should be done by the mason contractor after the windows are set.*

### Glass and Glazing

*Note: (See also pages 1 and 4.) Specify glass and glazing under proper heading elsewhere in general specifications of other trades.*

*(a) Do not specify single thickness glass.*

*(b) Specify a high grade steel casement putty.*

*(c) Specify that all casement windows shall be glazed from the inside, the glass set in a bed of putty and held by the Lupton metal glazing stops, or*

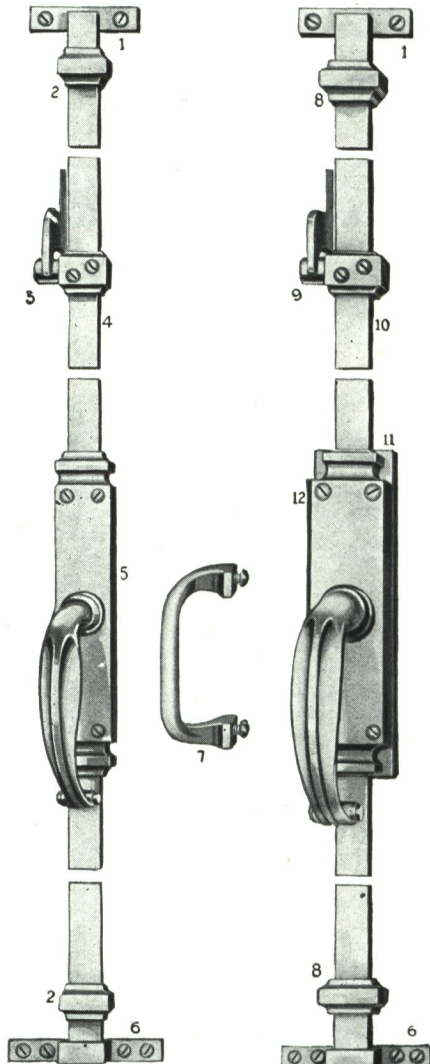
*(d) That all casement windows shall be glazed from the outside, the glass set in a bed of putty and held by glazing clips.*



# HARDWARE FOR LUPTON STEEL CASEMENTS—HEAVY TYPE

All hardware numbers are for solid bronze hardware highly polished, unless noted otherwise. Cam handles, latches and spring catches are mounted either on the ventilator section or on steel plates welded to the ventilator.

Hardware is also available in bronze in several special finishes and in malleable iron painted or bronze plated at corresponding prices. Malleable iron must always be used on Underwriters' casements.



Bolt for Casements Up to 7 ft. High

Bolt for Casements Over 7 ft. High

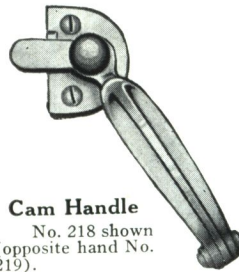
## Cremone Bolts for Double Casements

Consists of the following:

1. Keeper No. 291  
Used at top and bottom of swing-out casements
- Or
6. Keeper No. 285  
Used at top and bottom of swing-in casements
2. Bar Guide No. 293  
Spaced approx. 1 ft. 0 in. apart
3. Center Latch and Keeper  
No. 286 above handle  
No. 292 below handle  
Spaced approx. 2 ft. 0 in. apart
4. Bronze Bar  $\frac{1}{2} \times \frac{1}{4}$  in.
5. Handle and Case No. 290
7. Pull Handle No. 237

Consists of the following:

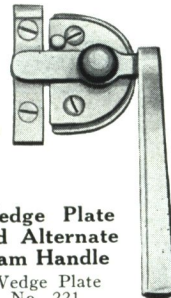
1. Keeper No. 291  
Used at top and bottom of swing-out casements
- Or
6. Keeper No. 285  
Used at top and bottom of swing-in casements
8. Bar Guide No. 340  
Spaced approx. 1 ft. 0 in. apart
9. Center Latch and Keeper  
No. 337 above handle  
No. 338 below handle  
Spaced approx. 2 ft. 0 in. apart
10. Bronze Bar  $\frac{5}{8} \times \frac{1}{4}$  in.
11. Malleable Iron Base Plate No. 146
12. Handle and Case No. 256
7. Pull Handle No. 237



## Cam Handle

No. 218 shown (opposite hand No. 219).

Used on side-hinged or vertically pivoted casements up to 4 ft. 0 in. high



## Wedge Plate and Alternate Cam Handle

Wedge Plate No. 221

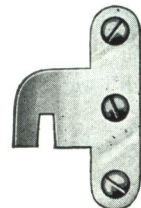
Used on side-hinged swing-out casements or vertically pivoted casements

Alternate cam handle No. 210 shown (opposite hand No. 211).

When used in the double or triple locking device hardware numbers are as follows:

Swing-out, No. 214, as shown (opposite hand No. 215).

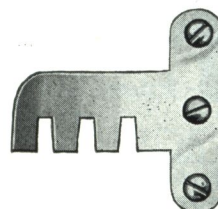
Swing-in, No. 216, as shown (opposite hand No. 217)



## Single Keeper

No. 222 shown (opposite hand No. 233)

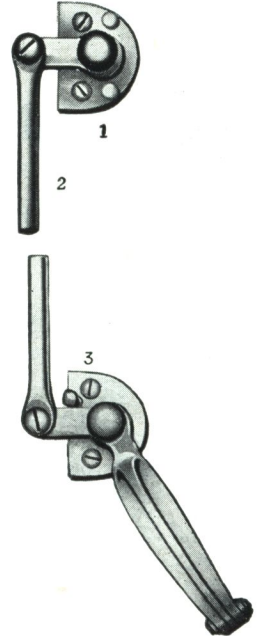
Used on swing-in casements



## Triple Keeper

No. 223 shown (opposite hand No. 224)

Used on swing-in casements



## Double Locking Device

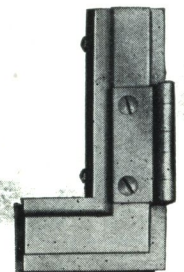
Used on side-hinged swing-out and vertically pivoted casements, over 4 ft. 0 in. and up to 8 ft. 0 in. high. Consists of the following:

1. Auxiliary Latch No. 213
2.  $\frac{1}{2}$  in. Steel Tube
3. Cam Handle No. 225 (shown)  
(Opposite Hand No. 226)

Similar device for side-hinged swing-in casements consists of:

1. Auxiliary Latch No. 212
2.  $\frac{1}{2}$  in. Steel Tube
3. Cam Handle No. 227 (shown)  
(Opposite Hand No. 228)

Triple Locking Device for use on casements over 8 ft. 0 in. high is similar, with an additional auxiliary latch



## Bronze Butt No. 2200

With steel pin. Not polished. Used on hinged casements



## HARDWARE FOR LUPTON STEEL CASEMENTS—HEAVY TYPE

All hardware numbers are for solid bronze hardware highly polished, unless noted otherwise. Cam handles, latches and spring catches are mounted either on the ventilator section or on steel plates welded to the ventilator.

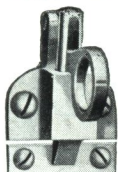
Hardware is also available in bronze in several special finishes and in malleable iron painted or bronze plated at corresponding prices. Malleable iron must always be used on Underwriters' casements.



**Cam Handle**

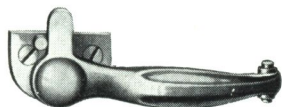
No. 268 shown (opposite hand No. 269)

Used at bottom of Projected-Out-at-Bottom ventilators within reach from floor. One handle used for ventilators up to 3 ft. 6 in. wide. Two handles for wider ventilators



**Spring Catch No. 243**

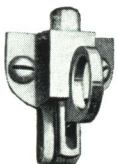
Used at bottom of Projected-Out-at-Bottom ventilators beyond reach from floor



**Cam Handle**

No. 266 shown (opposite hand No. 267)

Used at top of Projected-In-at-Top ventilators within reach from floor. One handle used for ventilators up to 3 ft. 6 in. wide. Two handles used for wider ventilators



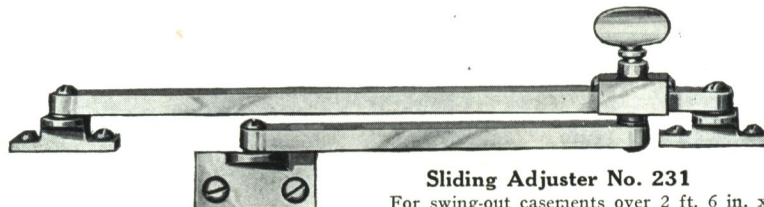
**Spring Catch No. 248**

Used at top of Projected-In-at-Top ventilators beyond reach from floor



**Pull Down Ring No. 358**

Used at top of Projected-Out-at-Bottom ventilators



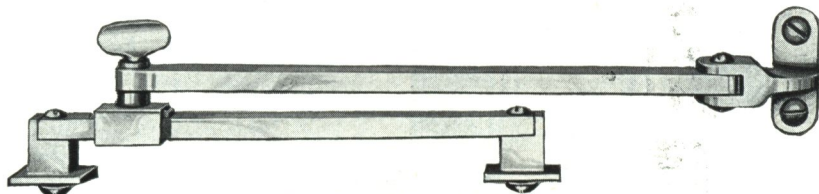
**Sliding Adjuster No. 231**

For swing-out casements over 2 ft. 6 in. x 7 ft. 0 in. A similar adjuster, No. 347 used for smaller casements not less than 1 ft. 6 in. wide



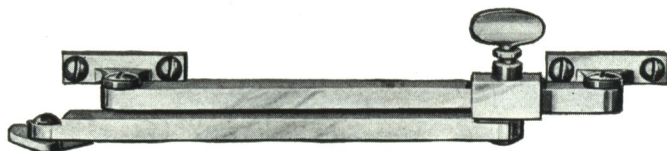
**Peg Stay No. 209**

For horizontally pivoted casements. A similar peg stay No. 249 or a peg stay terminating in a scroll (No. 250) is used on vertically pivoted casements



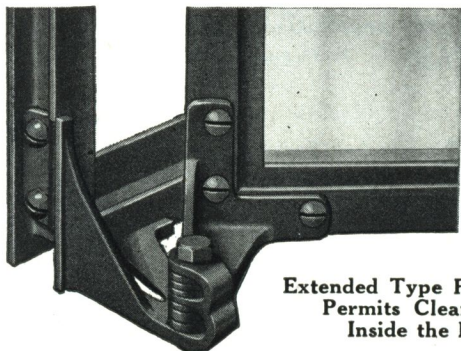
**Exterior Sliding Adjuster**

For swing-in casements. No. 230 for single casements up to 1 ft. 7 in. wide, or for double casements up to 3 ft. 0 in. wide. No. 229 for larger casements



**Interior Sliding Adjuster No. 236**

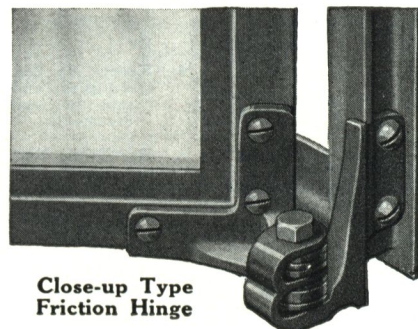
For swing-in casements



**Extended Type Friction Hinge**  
Permits Cleaning from Inside the Building

### Friction Hinges

Friction Hinges hold ventilators at the desired degree of opening up to 180° without the use of sliding adjusters. Made of bronze or malleable iron in two types. Bronze washers and a cadmium plated pin insure smooth operation. Painted finish.



**Close-up Type Friction Hinge**

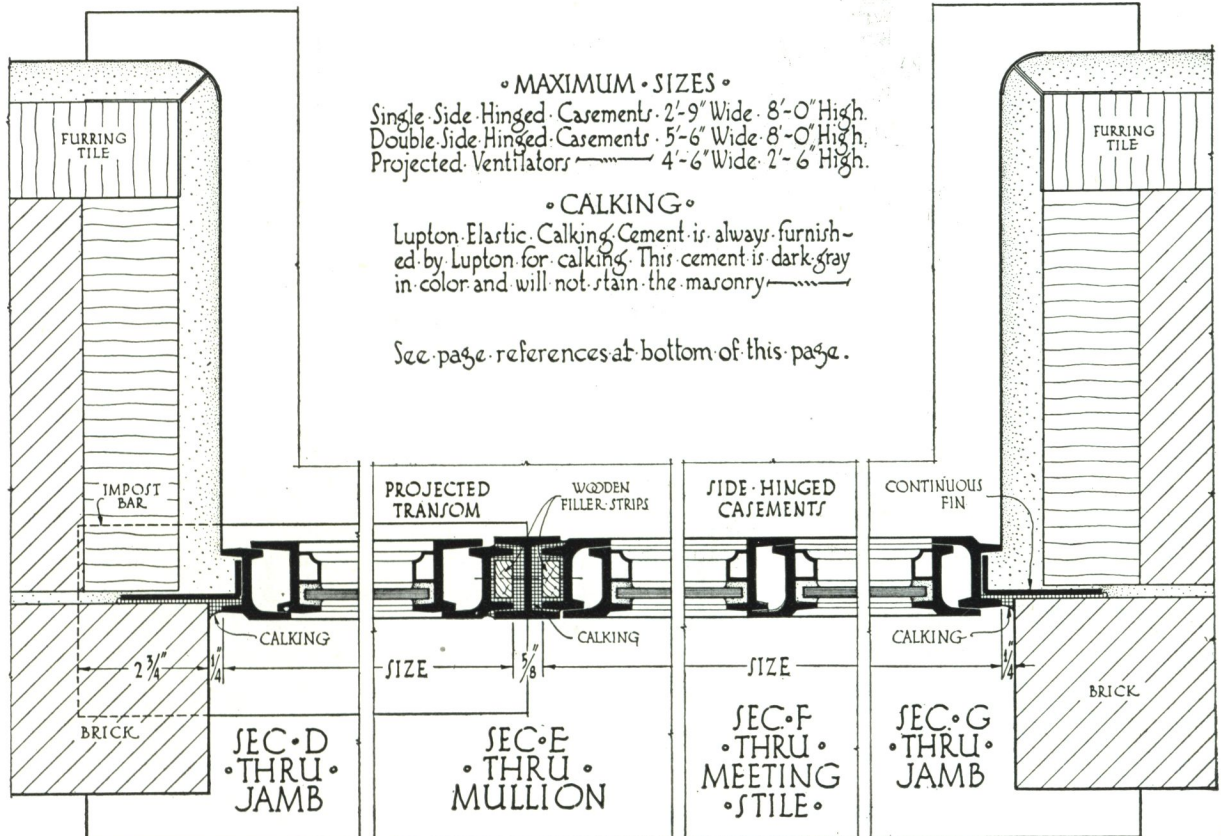
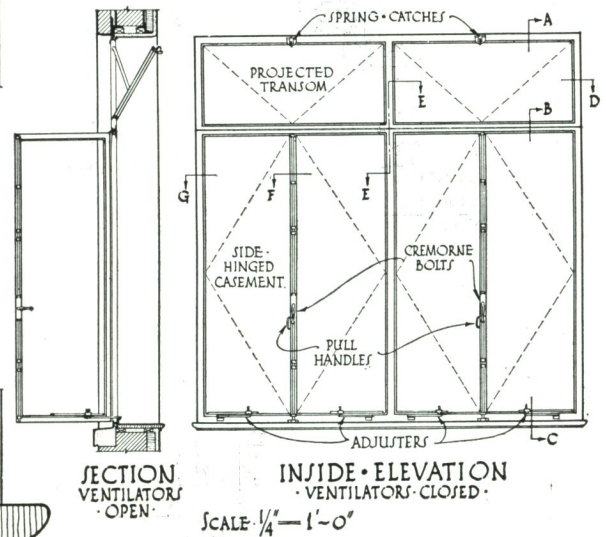
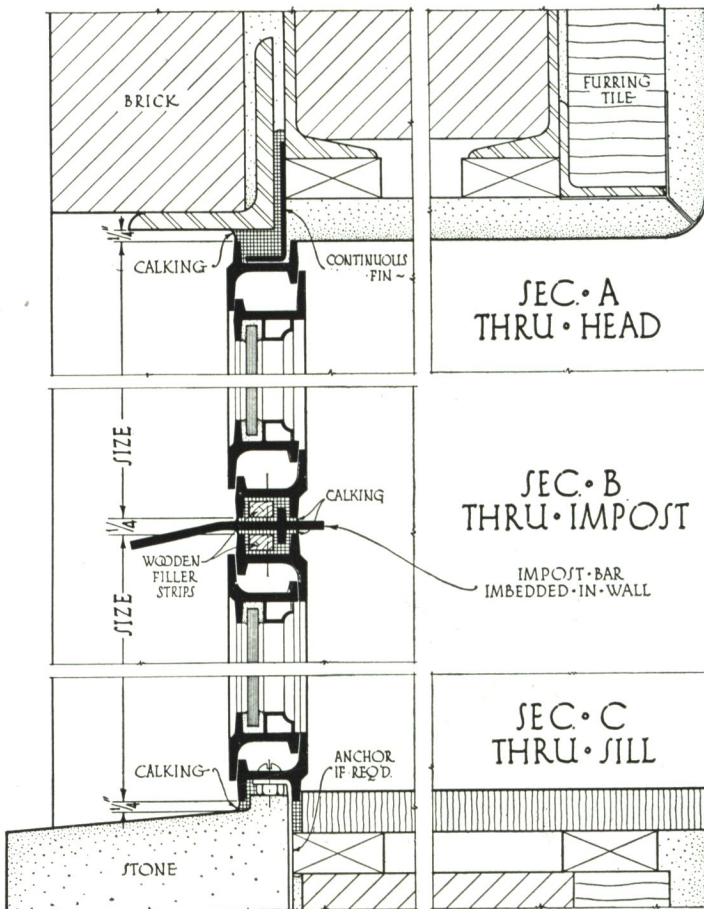
Note: Choice of hinges is limited by the over-all width of casements as follows:

| Minimum over-all width of casements | With extended hinge  |                 | With close-up hinge  |                 |
|-------------------------------------|----------------------|-----------------|----------------------|-----------------|
|                                     | Single casement..... | 1 ft. 4 5/8 in. | Double casement..... | 8 5/8 in.       |
|                                     |                      |                 |                      | 1 ft. 3 1/4 in. |



# LUPTON SIDE-HINGED-CASEMENTS WITH-PROJECTED-TRANSOMS

SCALE-FOR-DETAILS-3"=1'-0"



## • MAXIMUM • SIZES •

Single Side-Hinged-Casements-2'-9" Wide-8'-0" High.  
Double Side-Hinged-Casements-5'-6" Wide-8'-0" High.  
Projected-Ventilators-4'-6" Wide-2'-6" High.

## • CALKING •

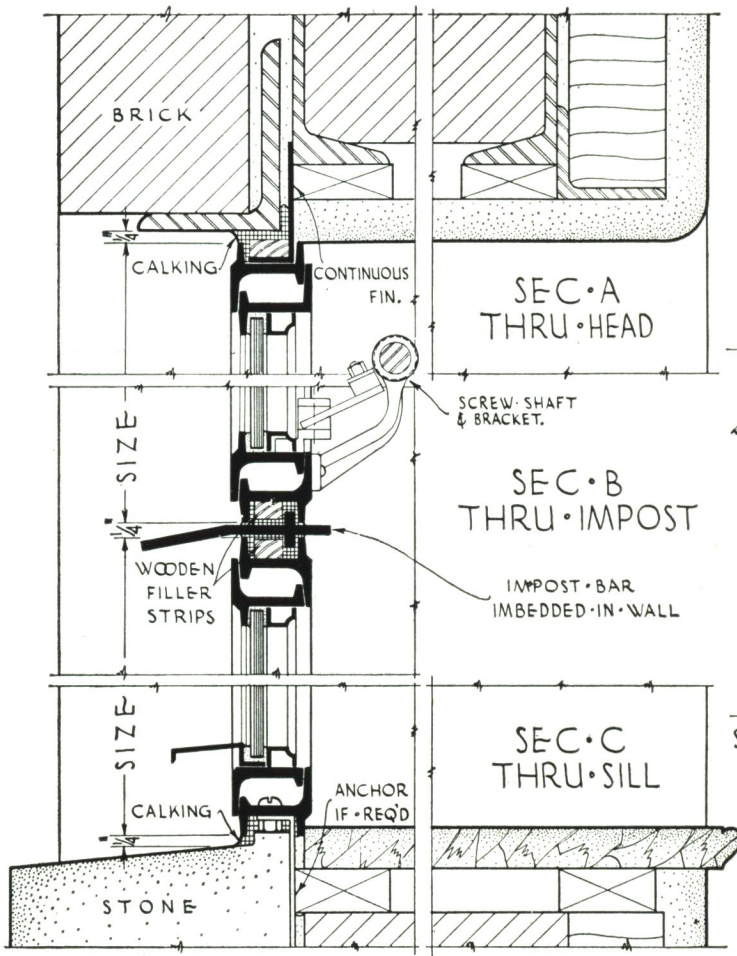
Lupton-Elastic-Calking-Cement-is-always-furnish-  
ed-by-Lupton-for-calking.This-cement-is-dark-gray  
in-color-and-will-not-stain-the-masonry

See-page-references-at-bottom-of-this-page.

Page references-General Information and Calking, pages 1 and 3; Glazing, page 4; Types of Casements, page 5; Specifications, page 6; Hardware, pages 7 and 8; Full Size Sections, pages 15, 16 and 17

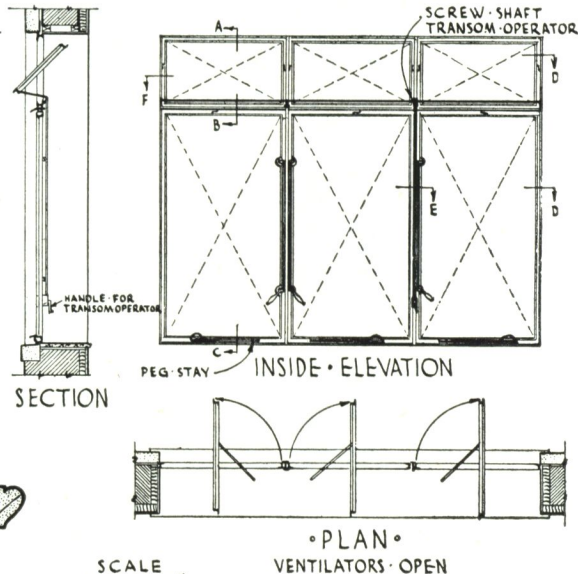
LUPTON PAGE 9





# VERTICALLY PIVOTED CASEMENTS WITH --- HORIZONTALLY PIVOTED TRANSOMS.

SCALE FOR DETAILS 3" = 1'-0"



## NOTES

### 1- MAXIMUM SIZES

Vertically Pivoted Casements 4'-3" Wide - 8'-0" High.  
Horizontally Pivoted Casements 4'-6" Wide - 4'-6" High.

### 2- PIVOTING

Pivots are usually located 2" from center of Ventilator.  
Horizontally Pivoted Casements may be pivoted 4" from top or 4" from bottom if desired ~ Vertically Pivoted Casements can be pivoted 4" from jamb but this reduces the maximum size allowable.

### 3- HARDWARE

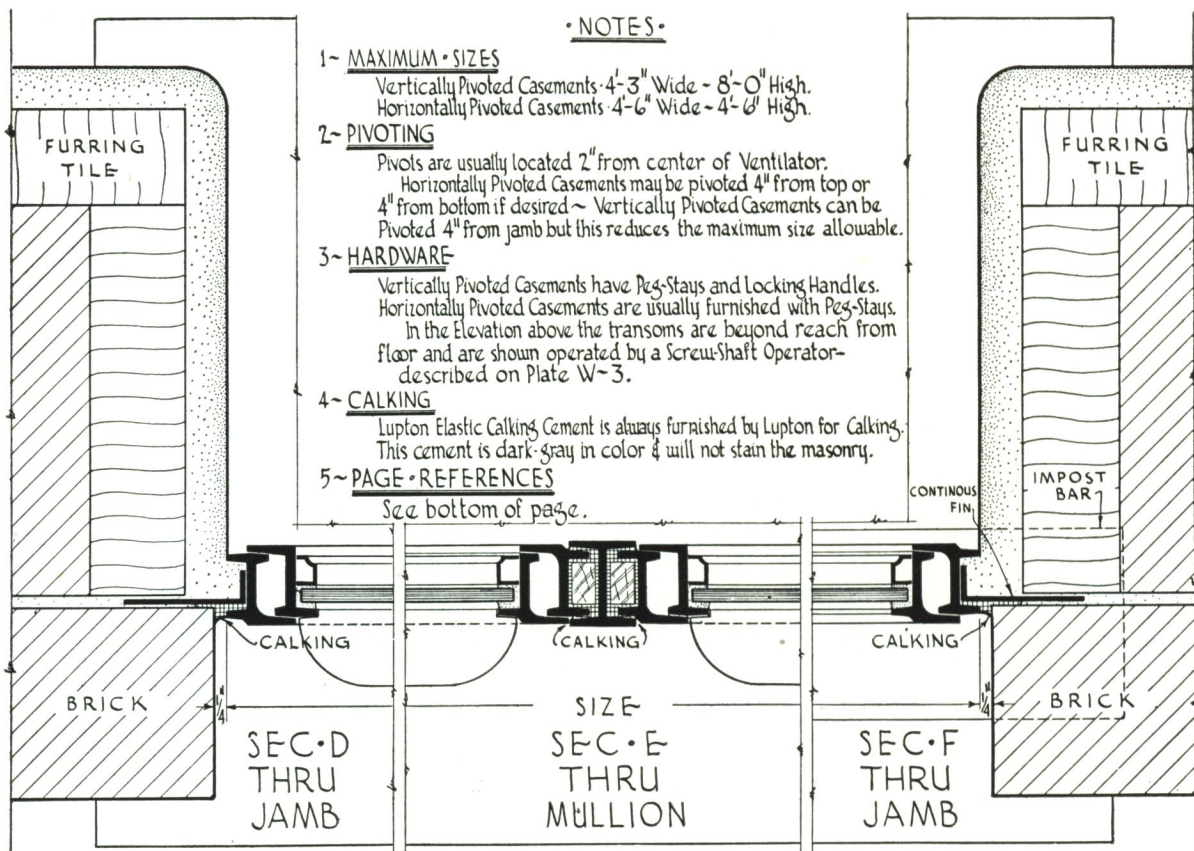
Vertically Pivoted Casements have Peg-Stays and Locking Handles.  
Horizontally Pivoted Casements are usually furnished with Peg-Stays.  
In the Elevation above the transoms are beyond reach from floor and are shown operated by a Screw-Shaft Operator described on Plate W-3.

### 4- CALKING

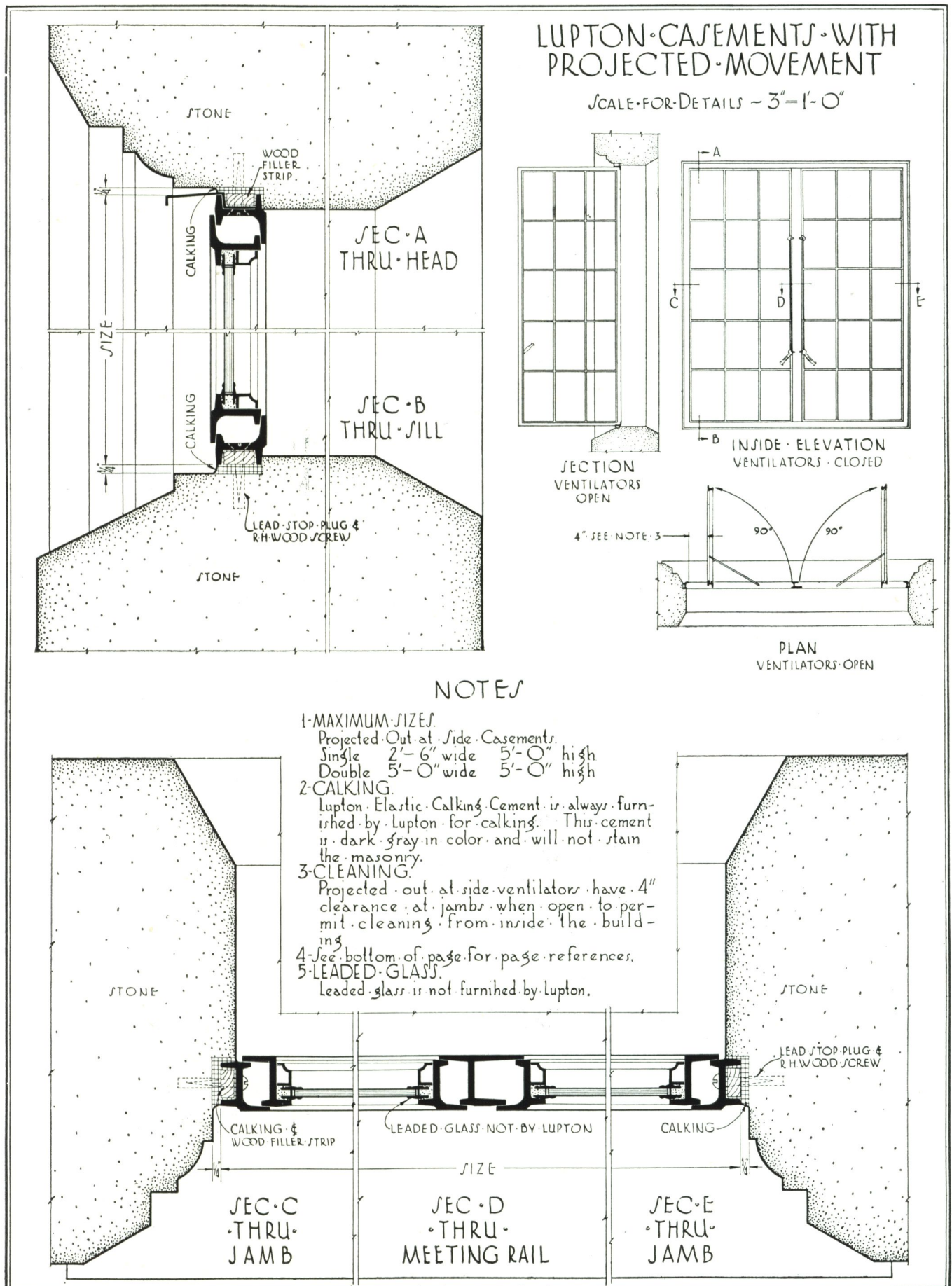
Lupton Elastic Calking Cement is always furnished by Lupton for Calking.  
This cement is dark-gray in color & will not stain the masonry.

### 5- PAGE REFERENCES

See bottom of page.





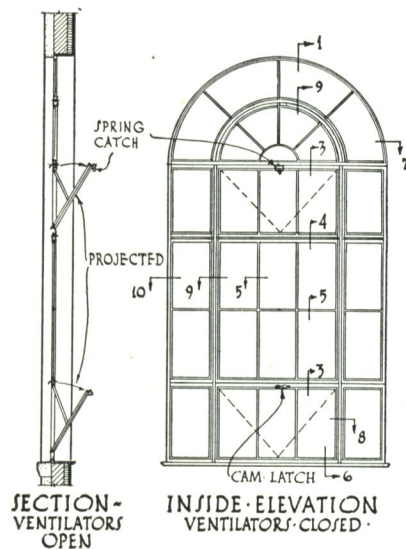
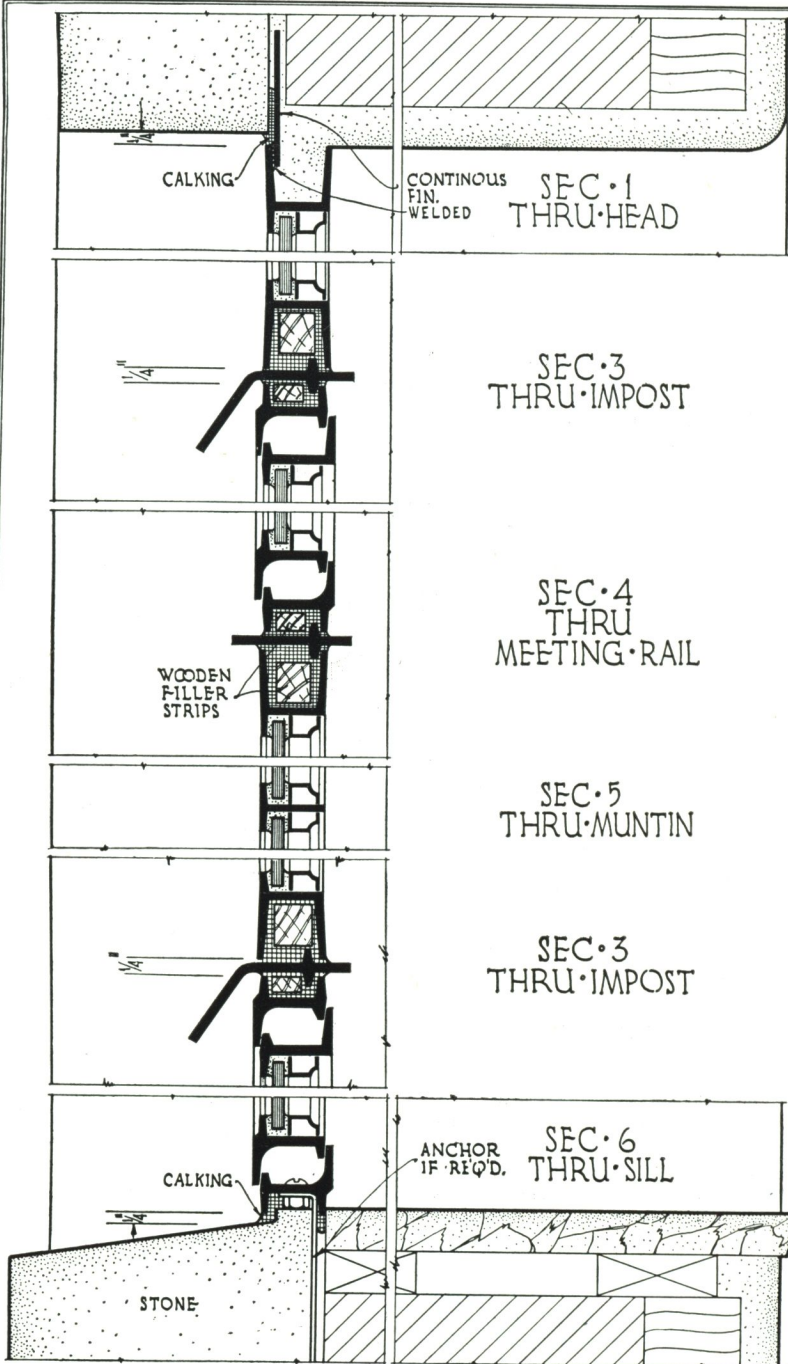


Page references—General Information and Calking, pages 1 and 3; Glazing, page 4; Types of Casements, page 5; Specifications, page 6; Hardware, pages 7 and 8; Full Size Sections, pages 15, 16 and 17



LUPTON • CASEMENTS  
WITH • CIRCLE • HEADS

SCALE FOR DETAILS 3" = 1'-0"

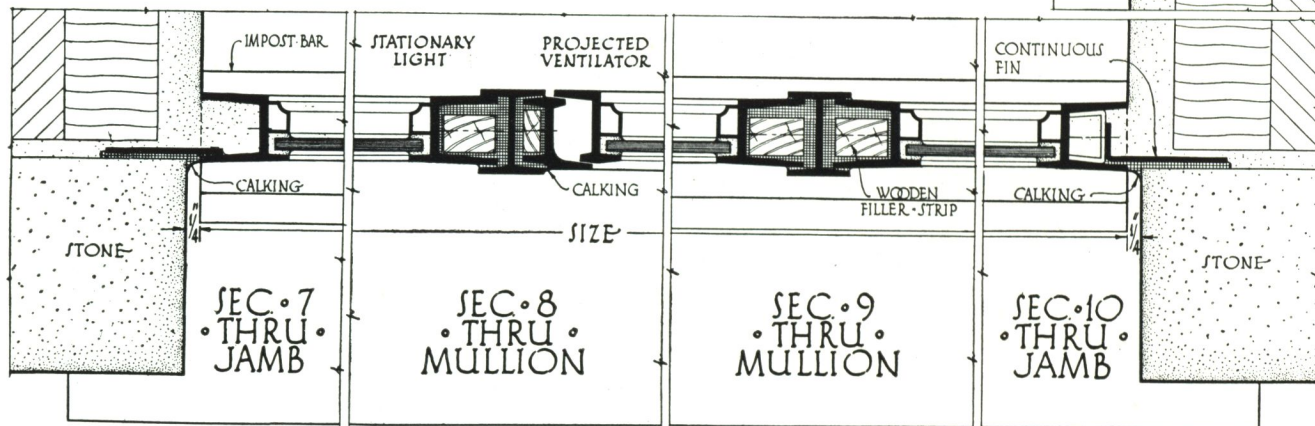


SCALE 1/8" = 1'-0"

## • CALKING •

Lupton Elastic Calking Cement is always furnished by Lupton for Calking. This cement is dark gray in color & will not stain the masonry.

See page references at bottom of this page.



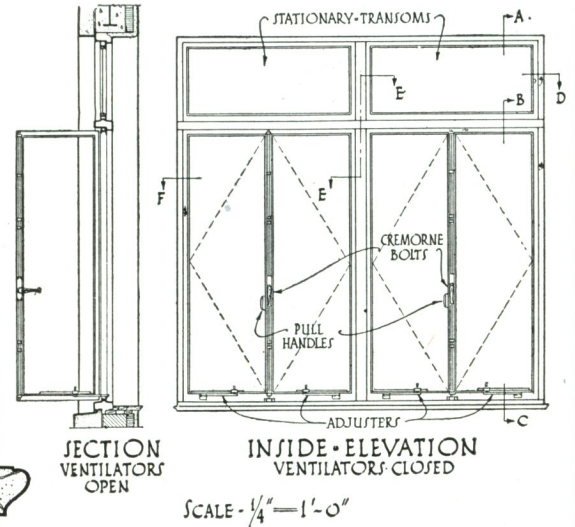
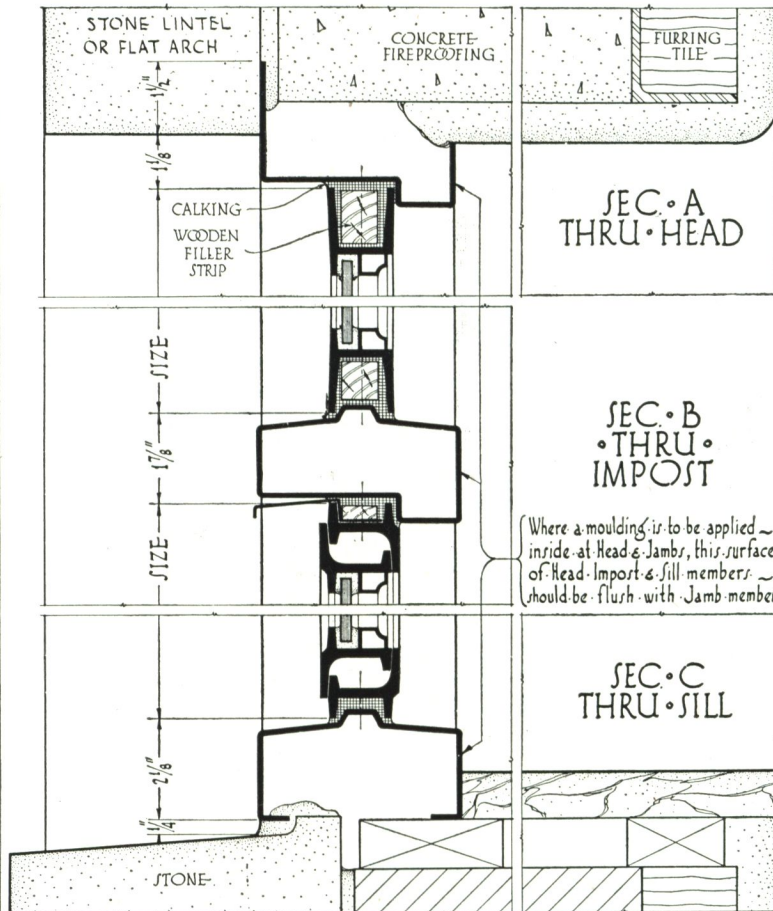
Page references—General Information and Calking, pages 1 and 3; Glazing, page 4; Types of Casements, page 5; Specifications, page 6; Hardware, pages 7 and 8; Full Size Sections, pages 15, 16 and 17

LUPTON PAGE 12



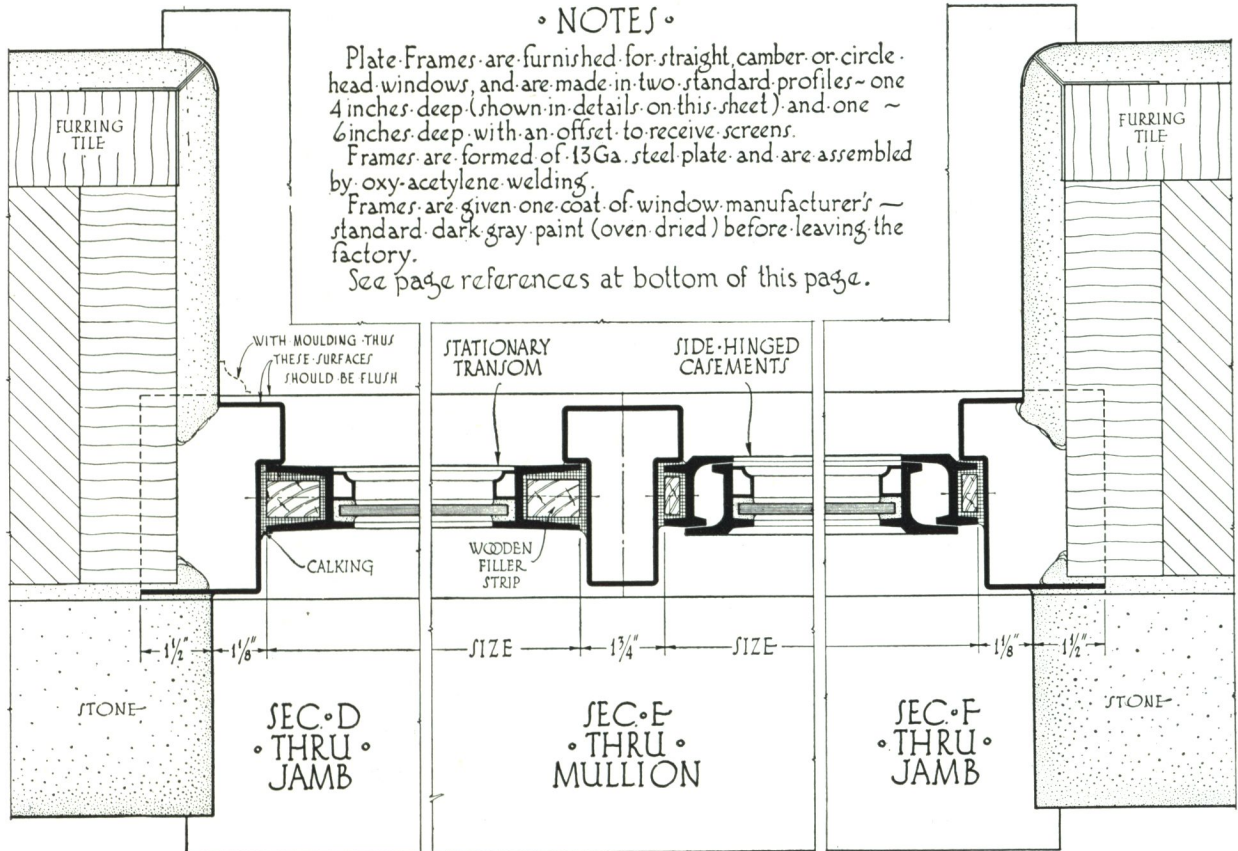
# • LUPTON • CASEMENTS • WITH • 4" • PLATE • FRAMES

SCALE • FOR • DETAILS •  $\frac{3}{4}$ " = 1'-0"



## • NOTES •

Plate Frames are furnished for straight, camber or circle head windows, and are made in two standard profiles - one 4 inches deep (shown in details on this sheet) and one 6 inches deep with an offset to receive screens. Frames are formed of 13 Ga. steel plate and are assembled by oxy-acetylene welding. Frames are given one coat of window manufacturer's standard dark gray paint (oven dried) before leaving the factory. See page references at bottom of this page.



Page references—General Information and Calking, pages 1 and 3; Glazing, page 4; Types of Casements, page 5; Specifications, page 6; Hardware, pages 7 and 8; Full Size Sections, pages 15, 16 and 17



# LUPTON CASEMENTS WITH 6" PLATE FRAMES

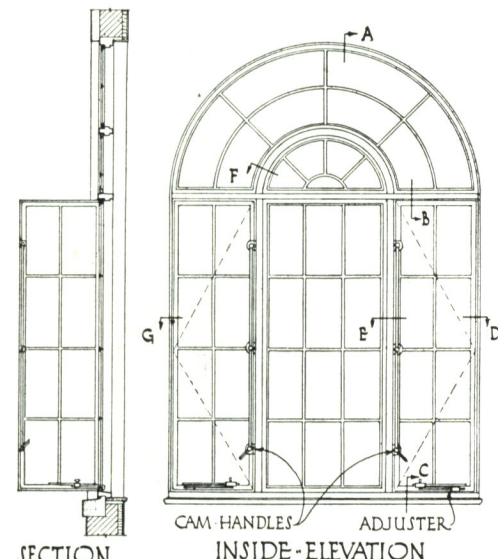
SCALE FOR DETAILS - 3" = 1'-0"

SEC. A  
THRU HEAD

SEC. B  
THRU  
IMPOST

Where a moulding is to be applied inside at Head & Jamb this surface of Head, Imposts & Sill members should be flush with Jamb.

SEC. C  
THRU SILL



• CALKING •  
Lupton Elastic Calking Cement is always furnished by Lupton for Calking. This cement is dark gray in color and will not stain the masonry.  
See page references at bottom of this page.

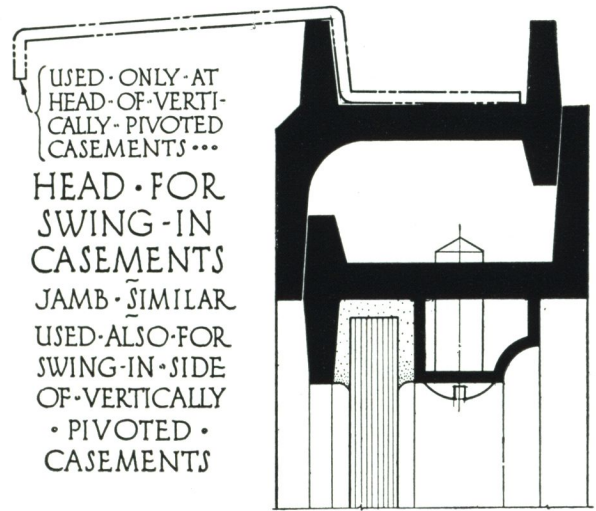
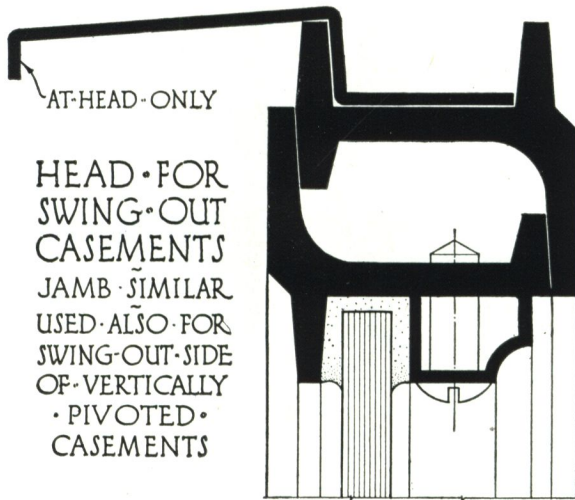
SEC. D  
THRU JAMB

SEC. E  
SEC. F SIMILAR WITH  
STATIONARY LIGHT ON  
EACH SIDE OF MULLION

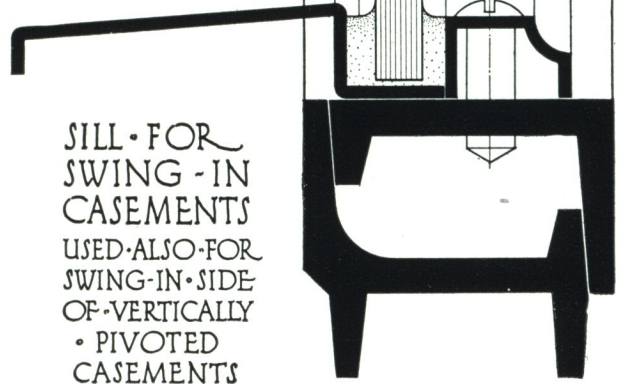
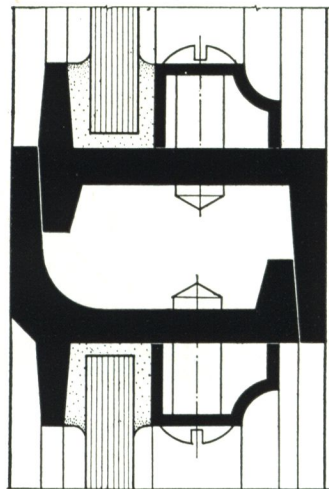
SEC. G  
THRU JAMB



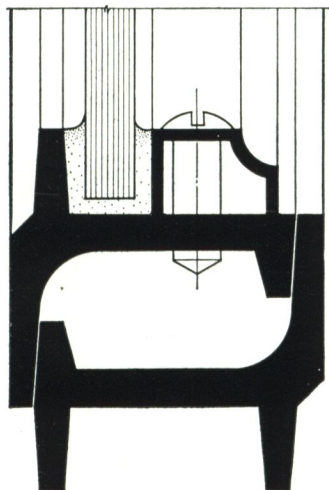
# LUPTON • CASEMENTS - HEAVY • TYPE • FULL • SIZE • SECTIONS •



MEETING • STILE  
FOR • DOUBLE  
CASEMENTS  
SWING • OUT • OR  
• SWING • IN •



SILL • FOR  
SWING • OUT  
CASEMENTS

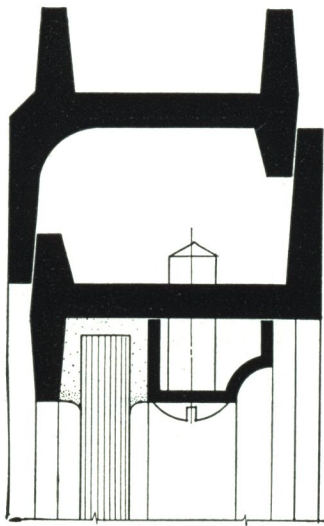


Page references—General Information and Calking, pages 1 and 3; Glazing, page 4; Types of Casements, page 5; Specifications, page 6; Hardware, pages 7 and 8

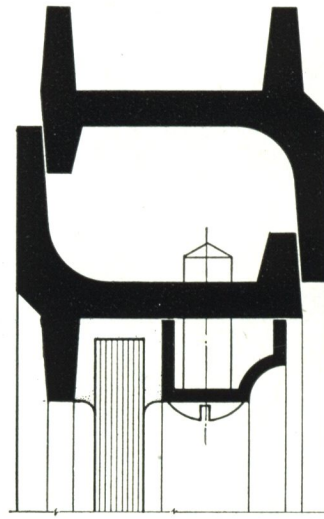
LUPTON PAGE 15



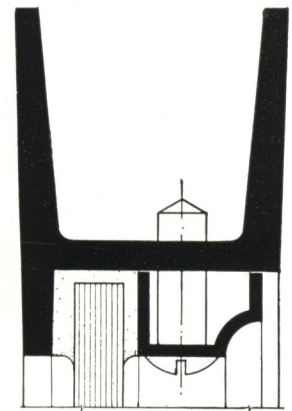
LUPTON • CASEMENTS - HEAVY • TYPE  
• FULL • SIZE • SECTIONS •



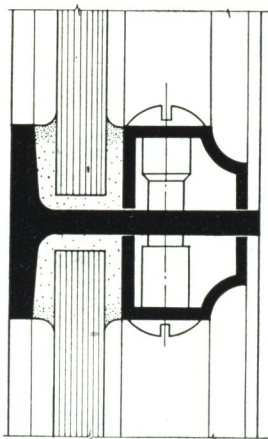
HEAD • FOR  
PROJECTED • OUT  
AT • BOTTOM •  
VENTILATOR  
HEAD • & • JAMB •  
FOR • PROJECTED  
IN • AT • TOP • VEN-  
TILATOR • SIMILAR



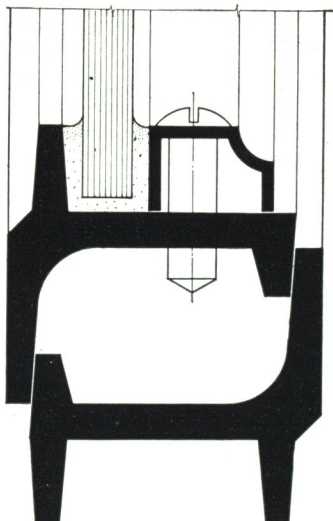
JAMB • FOR • PROJECT-  
ED • OUT • AT • BOTTOM  
• VENTILATOR •



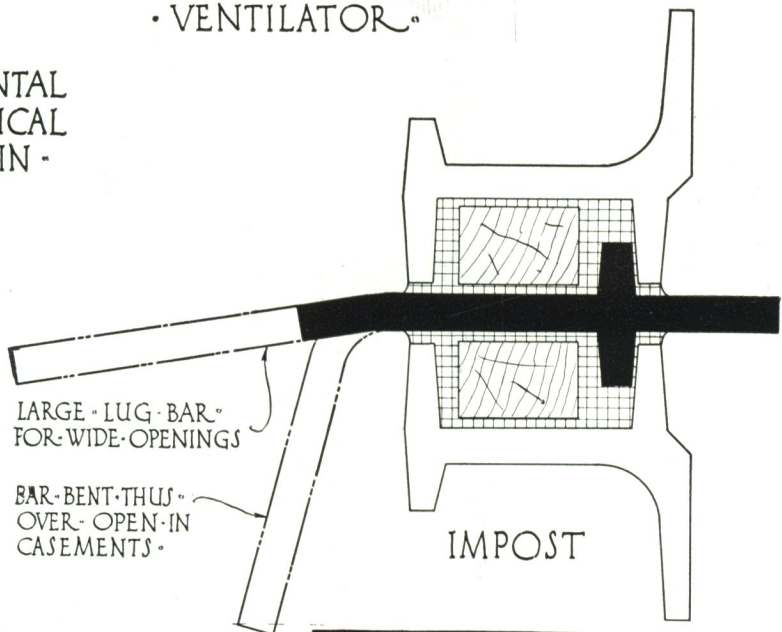
FRAME • MEMBER  
FOR • STATIONARY  
• LIGHT •



HORIZONTAL  
OR • VERTICAL  
• MUNTIN •



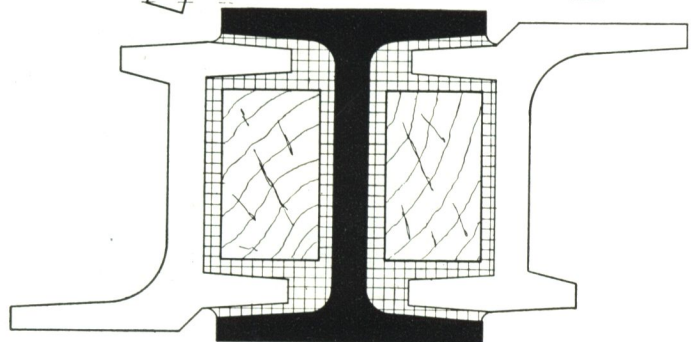
SILL • FOR •  
PROJECTED • OUT  
AT • BOTTOM •  
VENTILATOR  
SILL • FOR • PRO-  
JECTED • IN • AT •  
TOP • VENTILATOR  
• SIMILAR •



LARGE • LUG • BAR •  
FOR • WIDE • OPENINGS

BAR • BENT • THUS •  
OVER • OPEN • IN  
CASEMENTS •

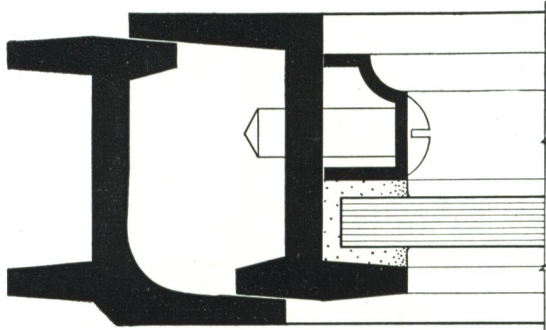
IMPOST



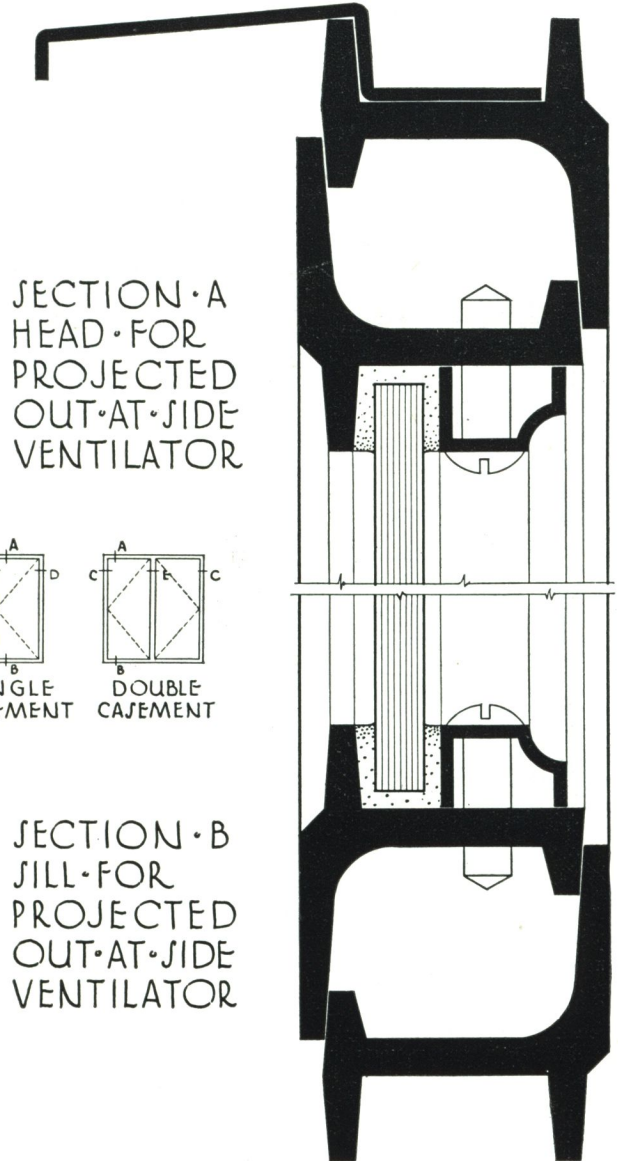
MULLION



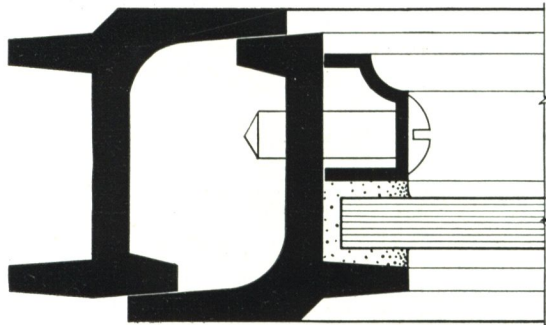
# LUPTON · CASEMENTS - HEAVY · TYPE FULL · SIZE · SECTIONS



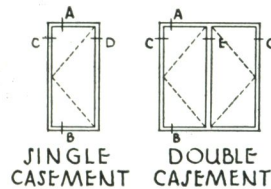
SECTION · C  
JAMB · FOR  
PROJECTED · OUT · AT · SIDE  
VENTILATOR



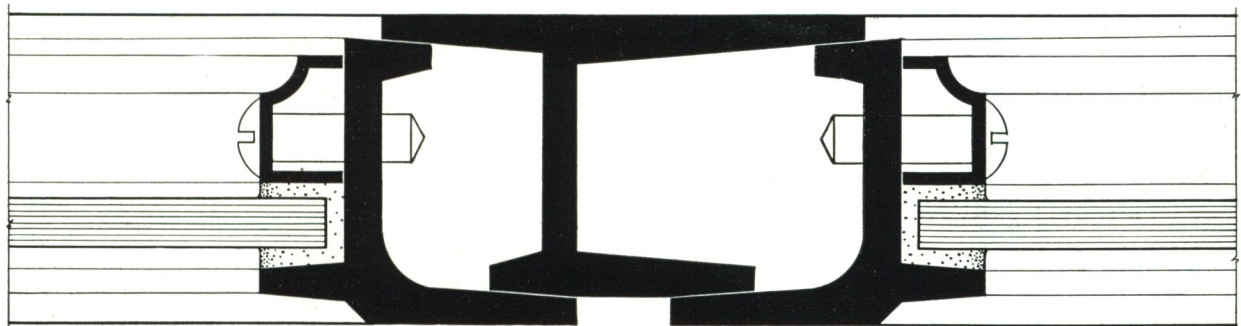
SECTION · A  
HEAD · FOR  
PROJECTED  
OUT · AT · SIDE  
VENTILATOR



SECTION · D  
JAMB · FOR  
PROJECTED · OUT · AT · SIDE  
VENTILATOR



SECTION · B  
SILL · FOR  
PROJECTED  
OUT · AT · SIDE  
VENTILATOR



SECTION · E · MEETING · STILE · FOR  
PROJECTED · OUT · AT · SIDE · VENTILATORS.

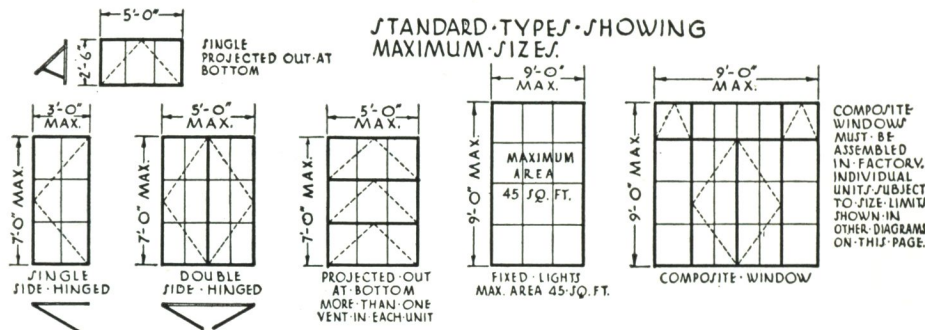
Page references—General Information and Calking, pages 1 and 3; Glazing, page 4; Types of Casements, page 5; Specifications, page 6; Hardware, pages 7 and 8

LUPTON PAGE 17

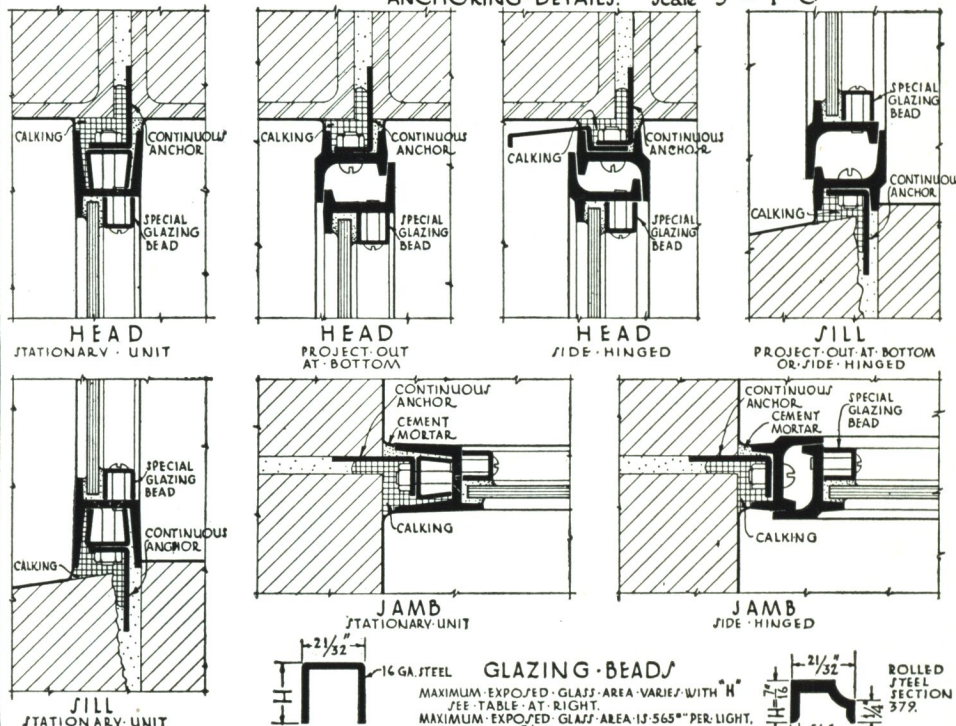


# UNDERWRITERS' HEAVY CASEMENTS

## STANDARD TYPES SHOWING MAXIMUM SIZES



## ANCHORING DETAILS Scale 3" = 1'-0"



Lupton Steel Casements (Heavy Type) may receive underwriters' labels, subject to the limitations indicated on this page.

Following are the underwriters' specifications in condensed form:

1. Maximum sizes—see diagrams.
2. Construction is essentially the same as for non-labeled casements.
3. All ventilators must open out.
4. Windows composed of two or more units must be assembled in factory.
5. Continuous anchors must be used at head, jambs and sill.
6. Hardware must be malleable iron (bronze plated if desired). Bronze hinges can be used if vents are equipped with steel stop pins.
7. Glass must be 1/4 in. thick wire glass.
8. Steel glazing stops must be used (see details).

| EXPOSED GLASS AREA | H     |
|--------------------|-------|
| NOT EXCEEDING 55"  | 1/4"  |
| " " 100"           | 5/16" |
| " " 155"           | 3/8"  |
| " " 225"           | 7/16" |
| " " 320"           | 1/2"  |
| " " 400"           | 9/16" |
| (MAXIMUM) "        | 565"  |
|                    |       |
| GLAZING ANGLE      |       |
| 16 GA. STEEL       |       |

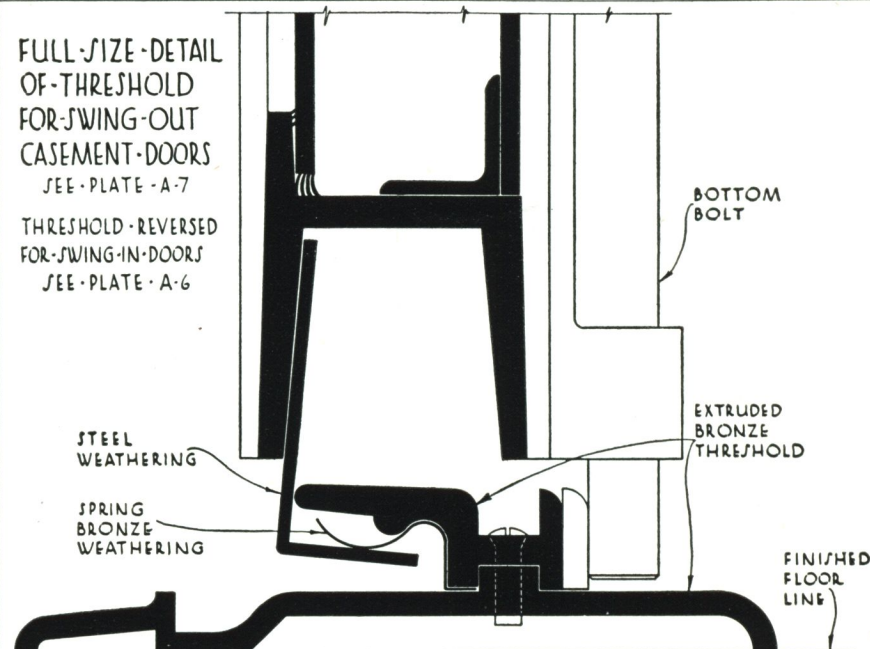
## CASEMENT DOORS (HEAVY TYPE)

FULL-SIZE-DETAIL  
OF-THRESHOLD  
FOR-SWING-OUT  
CASEMENT-DOORS

SEE-PLATE-A-7

THRESHOLD-REVERSED  
FOR-SWING-IN-DOORS

SEE-PLATE-A-6



Casement Doors are made in sizes and designs specified by the architect. Materials and construction are the same as for Steel Casements (Heavy Type). Specification for which is given on page 6.

Casement doors have a patented, extruded bronze threshold and usually, a 13 gauge steel panel extends across the bottom forming a kick plate.

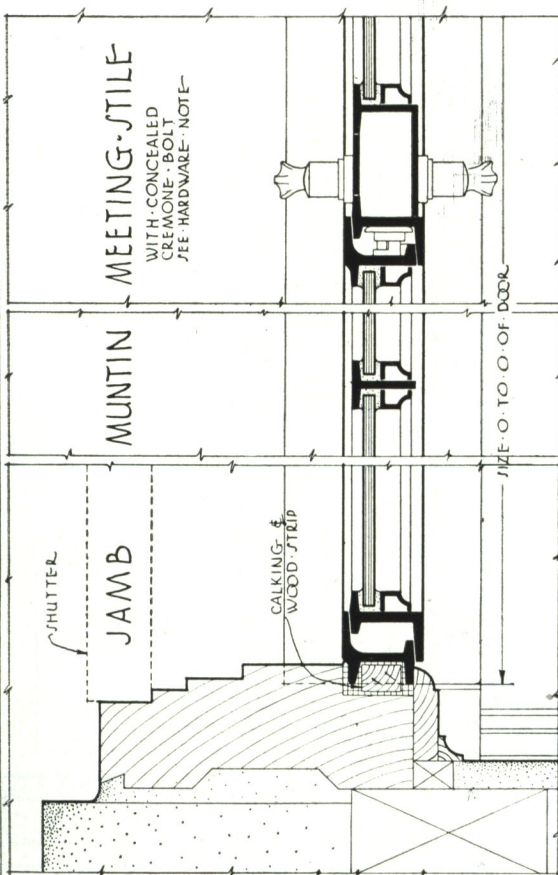
Doors are hung on bronze butts with steel pins and may be equipped with friction stays or "Grand Peerless" door stops if desired. Methods of operation and locking are indicated in the details on pages 19 and 20. Detail on page 21 shows correct method for framing lock to avoid glass breakage.





PLAN  
Scale  $\frac{1}{4}" = 1'-0"$

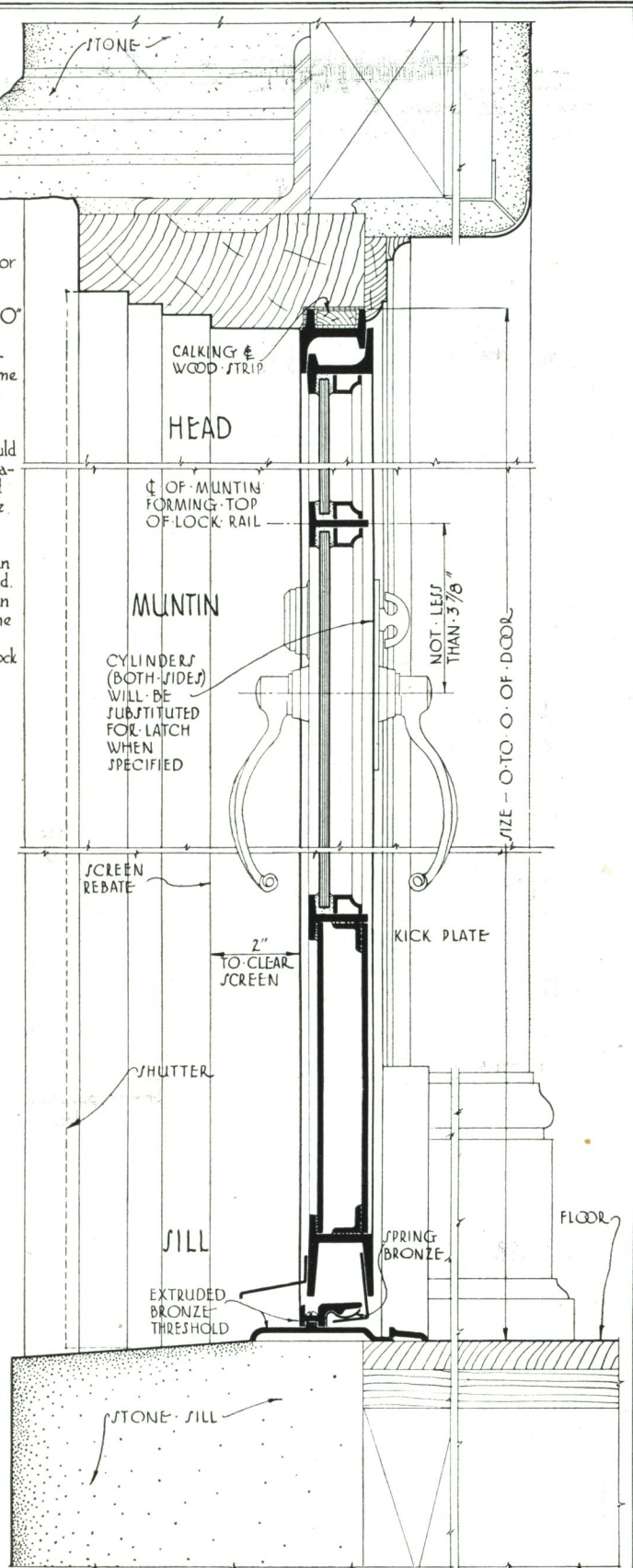
• NOTE •  
Doors may be single or double. Maximum sizes (doors with kick plates) single 2'-9" x 9'-0" double 5'-6" x 9'-0"  
Specifications for casement doors are the same as for windows, except that 13 ga. steel kick plate (if desired) and bronze threshold should be included in specifications. Muntins cannot be entirely omitted, see Plate A-6.  
• HARDWARE •  
Casehold adjusters can be furnished if specified. Locking hardware can be concealed cremone bolt as shown on this drawing or mortise lock and top and bottom bolt as shown on Plate A-7.



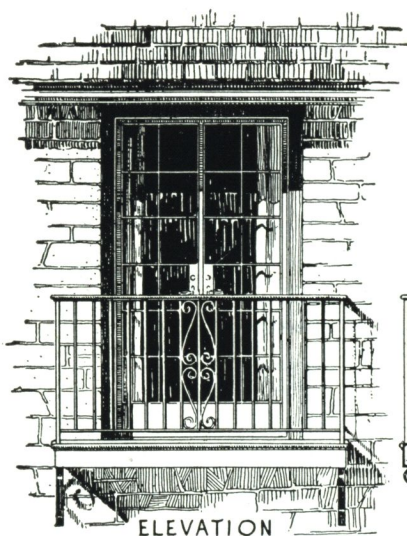
SCALE  
FOR DETAILS  
 $3" = 1'-0"$

CASEMENT DOORS TO SWING IN  
LUPTON CASEMENTS FOR DISTINCTIVE BUILDINGS

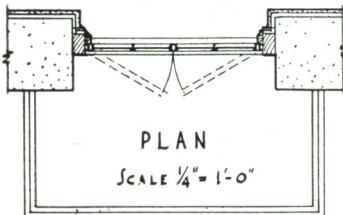
PLATE NUMBER  
A-6  
JANUARY - 1930



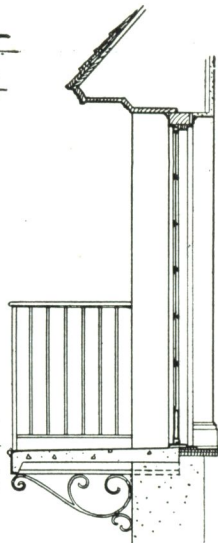




ELEVATION



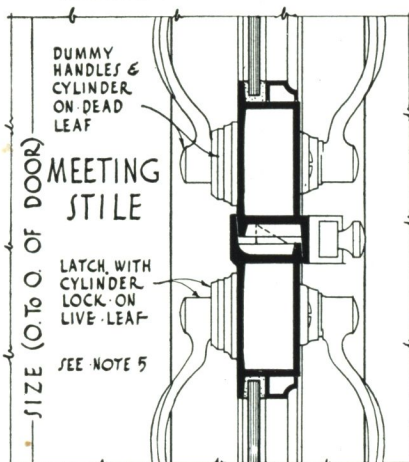
PLAN

SCALE  $\frac{1}{4}'' = 1'-0''$ 

SECTION

## NOTES

1. Doors may be single or double.
2. MAXIMUM SIZES  
Single doors 2'-9" wide (WITH KICK PLATE) 9'-0" high  
Double doors 5'-6" wide (WITH KICK PLATE) 9'-0" high
3. Specifications for casement doors are same as for windows except that 13 ga. steel kick plates (if desired) and bronze threshold should be included.
4. Muntins cannot be omitted entirely. See plate A-8
5. HARDWARE  
Locking hardware can be mortise lock with top & bottom bolts as shown on this drawing or concealed cremone bolt as shown on plate A-6. Hardware is solid bronze, polished. Casework adjusters can be furnished if specified.



DUMMY HANDLES &amp; CYLINDER ON DEAD LEAF

MEETING STILE

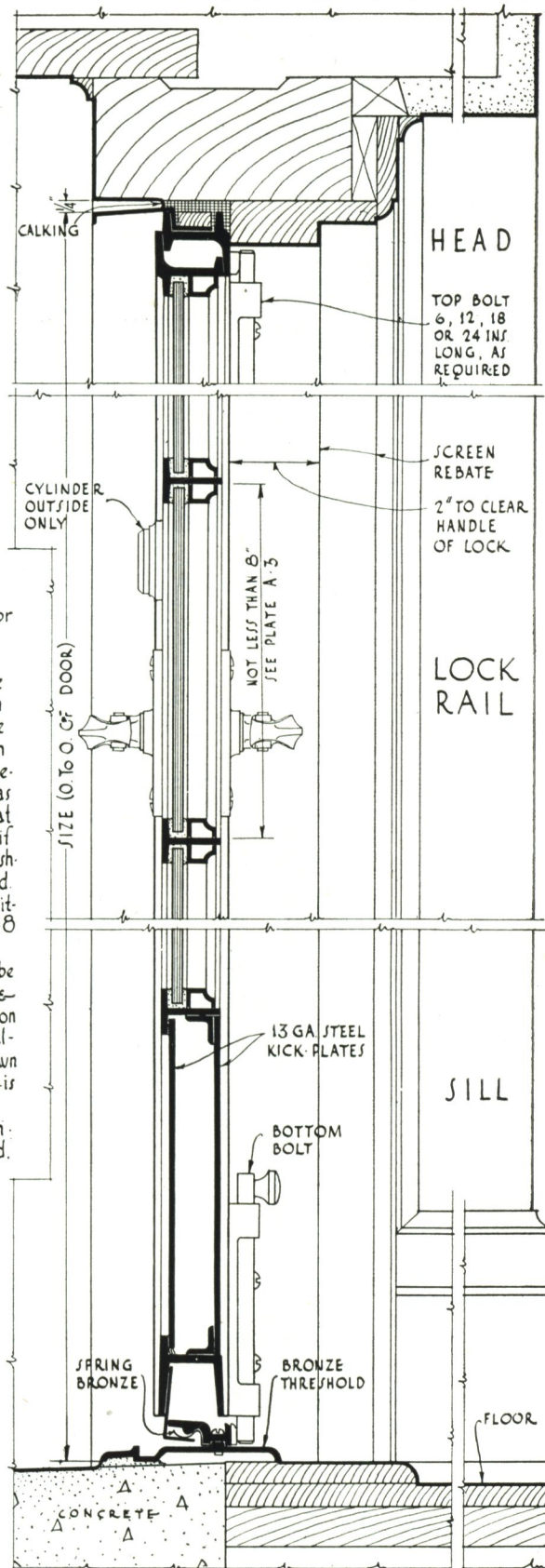
LATCH WITH CYLINDER LOCK ON LIVE LEAF

SEE NOTE 5

JAMB

CALKING

STONE



CALKING

HEAD

TOP BOLT  
6, 12, 18  
OR 24 INS.  
LONG, AS  
REQUIREDSCREEN  
REBATE  
2" TO CLEAR  
HANDLE  
OF LOCKLOCK  
RAILCYLINDER  
OUTSIDE  
ONLY

SIZE (O. TO O. OF DOOR)

NOT LESS THAN 8"  
SEE PLATE A-513 GA. STEEL  
KICK PLATESBOTTOM  
BOLTSPRING  
BRONZEBRONZE  
THRESHOLD

SILL

FLOOR

CONCRETE

SCALE  
FOR DETAILS -  
 $3'' = 1'-0''$

CASEMENT DOORS TO SWING OUT  
LUPTON CASEMENTS FOR DISTINCTIVE BUILDINGS

PLATE NUMBER  
A-7  
JANUARY 1930

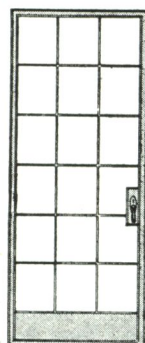


## •NOTES•

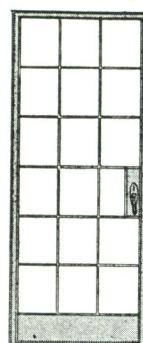
In order to avoid glass breakage resulting from cutting lights to fit around lock as shown by Sketch "A", doors must be designed with muntins arranged to form a lock rail as in Sketch "B".

Lock or concealed Cremone Bolt cannot be used on doors without Muntins. When a large unbroken area of glass is desired a panel must be provided as shown in Sketches "C" or "D" or by some similar arrangement.

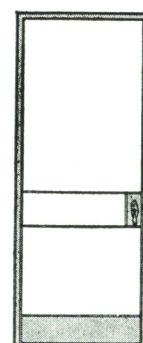
"THIS APPLIES TO THE MORTISE LOCK OR TO THE CONCEALED CREMONE BOLT.



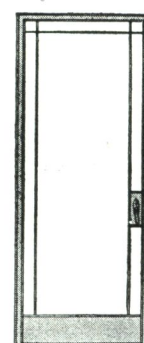
SKETCH "A"



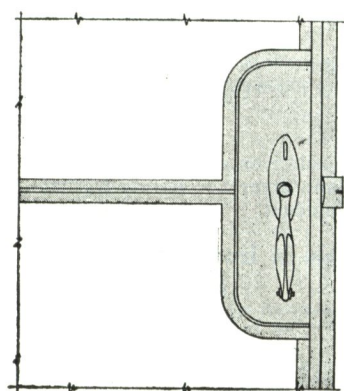
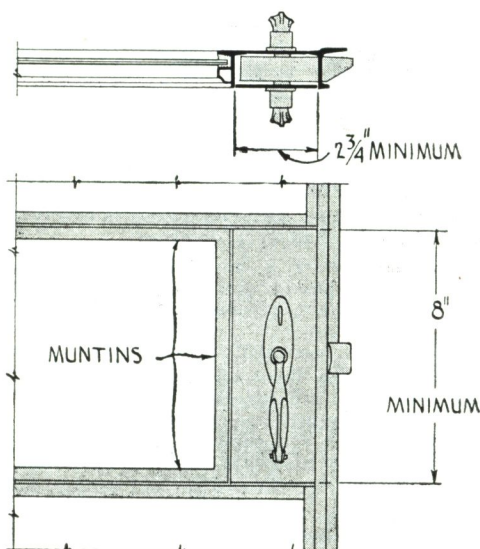
SKETCH "B"



SKETCH "C"



SKETCH "D"

INCORRECT METHOD  
SEE SKETCH "A"CORRECT METHOD  
SEE SKETCHES "B" "C" & "D"

## APPLICATION • OF • LOCK • TO • CASEMENT • DOORS

## LUPTON CASEMENT OPERATORS—SCREW TYPE

In banks, libraries and other buildings where window openings are fitted with large multiple unit casements, it is necessary to provide a method of operating casement ventilators that are beyond reach from the floor.

For this purpose Lupton has developed the screw type Casement Operator in several forms, to suit the varying requirements.

Classified by method of operation, there are two types of operators: those operated by an endless cord and those operated by a crank and vertical shaft.

**Cord Operation**

This type of operator is applied to a single ventilator, usually a transom. It is made in two types, details of which are shown on page 22. In the segmental type the cord passes over a pulley that has a threaded core and is mounted on a threaded bronze rod, bent in an arc. As the pulley turns it runs backward or forward on the rod, opening or closing the ventilator. In the alternate type the pulley is rigidly attached to the center of a shaft threaded at one end with a right-hand

thread and at the other with a left-hand thread and mounted on the stationary frame of the casement. As the pulley revolves, two bronze nuts travel along the threaded portions of the rod, opening or closing the casement.

**Crank and Shaft Operation**

This method is used where there are a number of ventilators to be operated simultaneously. Details of operation and application are shown on pages 23 to 25.

With the horizontal screw type shaft shown on page 25 the degree of opening is limited by the width of the ventilator as illustrated in the sketch on plate W-3. This has always to be remembered when designing.

The vertical screw shaft operator will operate a greater number of ventilators and a longer length of shaft than the horizontal type and the degree of opening is not limited by the width of the ventilator, but not more than two tiers of ventilators can be operated from one station.



# SPECIFICATION FOR LUPTON CASEMENT OPERATOR—SCREW TYPE

## Work Included

1. Furnish and install where shown on drawings Lupton Casement Operator Screw Type, manufactured by DAVID LUPTON'S SONS CO., Philadelphia, Pa.

## Material and Construction

*Note: Operators are available in three types.*

(A) Horizontal, vertical or curved screw shaft operated by cord and pulley.

(B) Horizontal screw shaft operated by vertical shaft, crank and miter gears.

(C) Vertical screw shaft, operated by crank and miter gears.

2. (A-1) Operator shall have a  $\frac{3}{8}$ -in. diameter steel shaft threaded with right- and left-hand threads mounted on three malleable iron brackets attached to frame of casement. Each threaded portion of the shaft shall be equipped with an adjustable bronze traveling nut. Sash rods shall be of  $\frac{3}{8}$  x  $\frac{1}{4}$ -in. round edge high carbon steel connected to the traveling nut and to the window in a manner to prevent chattering or vibration. Shaft shall be operated by a grooved bronze sheave wheel fastened by set screws to the horizontal screw shaft and rotated by means of a  $\frac{1}{8}$ -in. diameter endless cord.

2. (A-2) Operator shall consist of a  $\frac{3}{8}$ -in. threaded bronze rod bent to the required radius, a grooved pulley mounted on the rod, and a  $\frac{1}{8}$ -in. diameter endless cord.

Rod and pulley shall be attached, one to the vent and one to the frame in such a way that when the pulley is revolved by means of the cord the vent shall open or close.

2. (B) Operator shall have a  $\frac{1}{2}$ -in. diameter horizontal steel shaft cut with a 60° 3 per in. double thread. Shaft shall be threaded at one end with a left-hand thread and at the other with a right-hand thread.

Two bronze traveling nuts shall be furnished for each vent, one at each end of the threaded shaft. Traveling nut shall have an adjustable feature for close fitting of the vent. One end of sash rod shall be attached to the traveling nut and the other to the sash. Sash rod shall be made of  $\frac{3}{8}$  x  $\frac{1}{4}$ -in. round edge high carbon steel. Shaft shall be supported by malleable iron brackets rigidly attached to the window frame

or building structure and spaced so that shaft will be properly supported without excessive deflection.

Power shall be applied through a miter gear box, the gears being turned by a detachable handle 5 in. long. Power boxes and handle shall be of bronze. Each horizontal screw shaft to be operated from a miter gear box rigidly attached to mullion or jamb.

2. (C) Operator shall have a vertical  $\frac{3}{4}$ -in. diameter cold rolled steel shaft coupled to a threaded steel shaft 1 ft. 6 in. long and engaging with an internal thread on miter gear in bronze power box.

Power box shall be rigidly attached to window mullion or building structure and be equipped with a bronze handle 5 in. long that may be detachable.

The screw shaft shall move up and down in a vertical plane and turn a  $\frac{3}{4}$ -in. diameter horizontal steel shaft by means of a lever arm and connecting link.

Malleable iron arms shall be fastened by set screws to this horizontal shaft and shall be connected to the ventilator by means of flat sash rods.

Two arms and sash rods shall be furnished for each vent. Horizontal shaft shall be supported by malleable iron brackets attached to window or building structure and spaced so that shaft will have a minimum amount of deflection.

## Erection

3. Operating devices shall be erected and adjusted to proper working order by the window contractor.

## Painting

4. All malleable iron or steel parts shall be given one coat of operator manufacturer's standard dark gray paint, oven dried, before shipment.

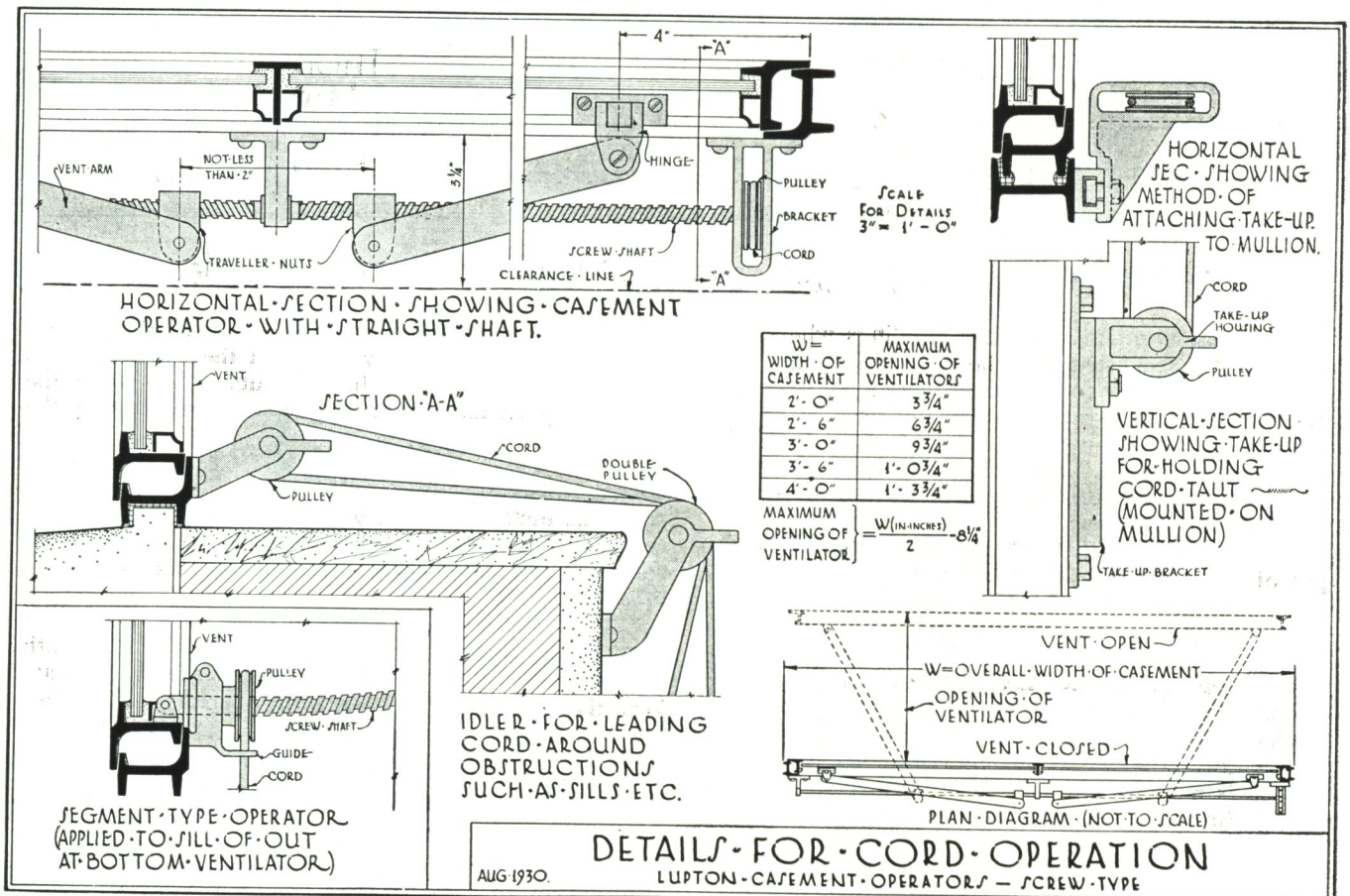
## Parts Available in Iron or Bronze

Power Box

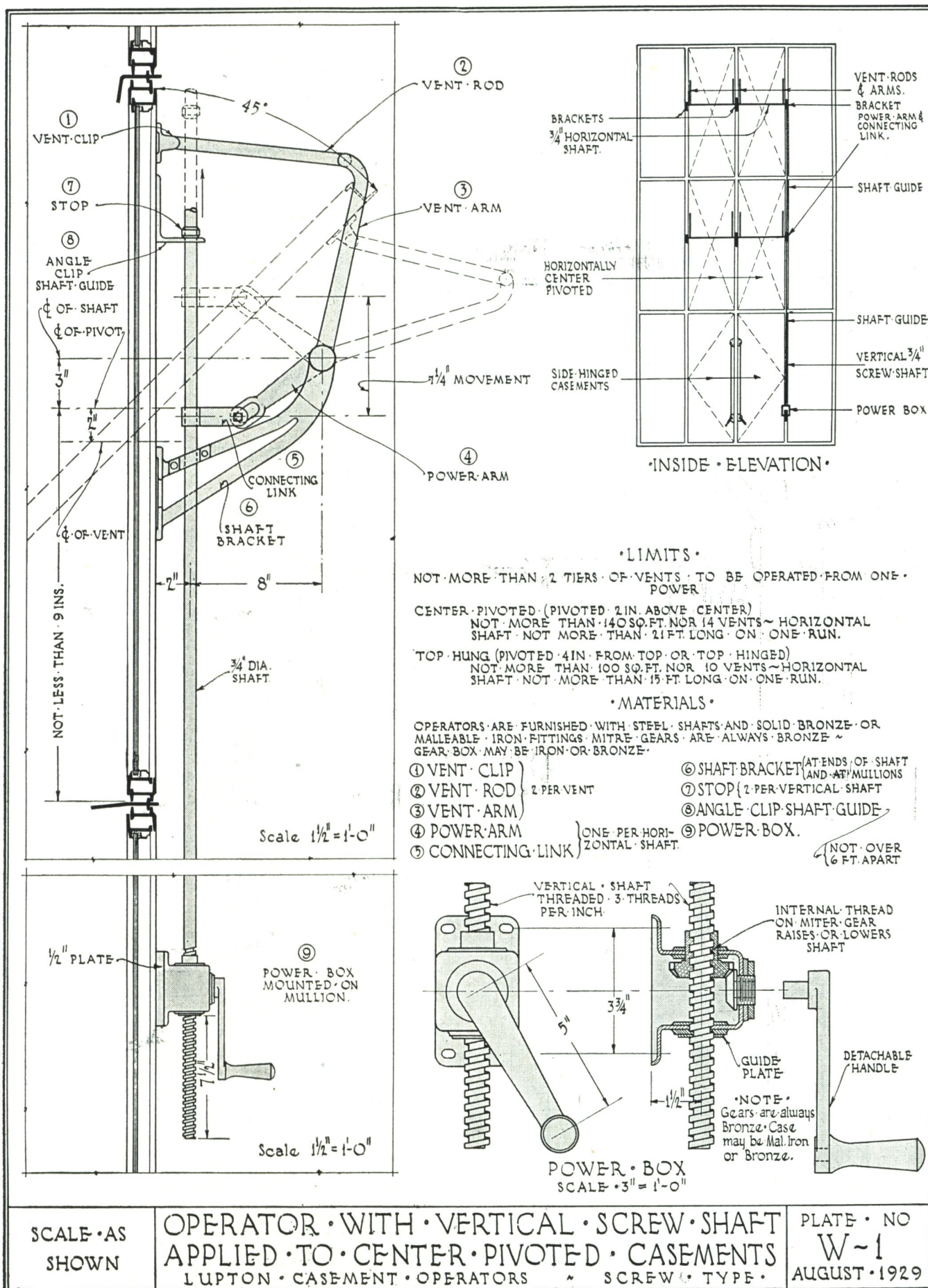
Handle

Miter Gear Box

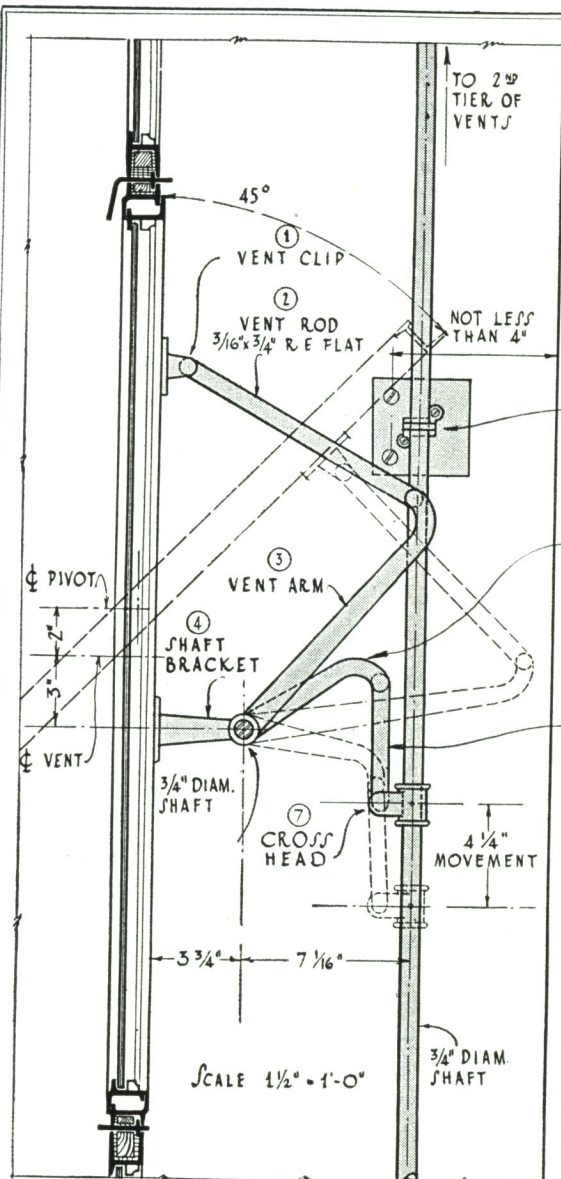
*Note: Power box may be concealed in wall, in which case a handle extension can be furnished.*











INSIDE  
FACE  
OF WALL

VENT RODS  
& ARM  
BRACKETS

3/4" SHAFT

BRACKET  
POWER ARM  
& CONNECTING  
LINK

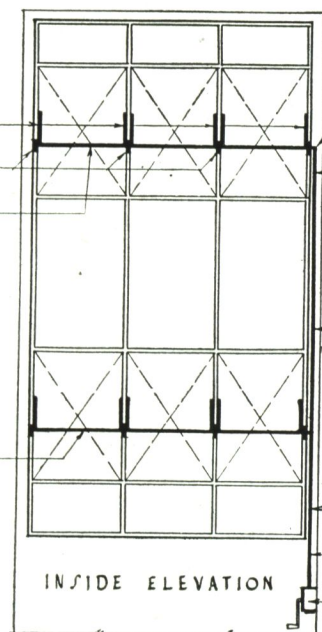
SHAFT  
GUIDES  
SEE SKETCH "A"

⑤  
SHAFT  
GUIDE  
FASTENED  
TO WALL  
SEE SKETCH "A"

⑤  
POWER  
ARM

3/4" SHAFT

⑥  
CONNECTING  
LINK  
3/16 x 3/4" ROUND  
EDGE FLAT



### LIMITS

NOT MORE THAN 2 TIERS OF VENTS TO BE OPERATED FROM ONE POWER.

CENTER PIVOTED (PIVOTED 2 IN. ABOVE CENTER)

NOT MORE THAN 140 SQ. FT. NOR MORE THAN 14 VENTS.  
HORIZONTAL SHAFT NOT MORE THAN 21 FT. LONG ON ONE RUN

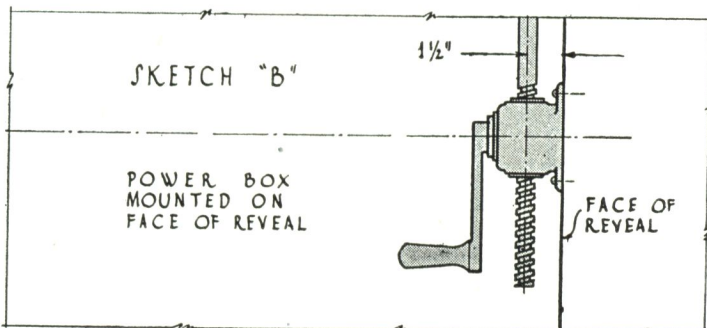
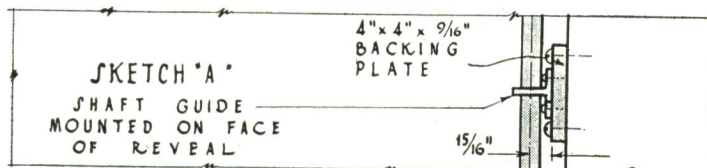
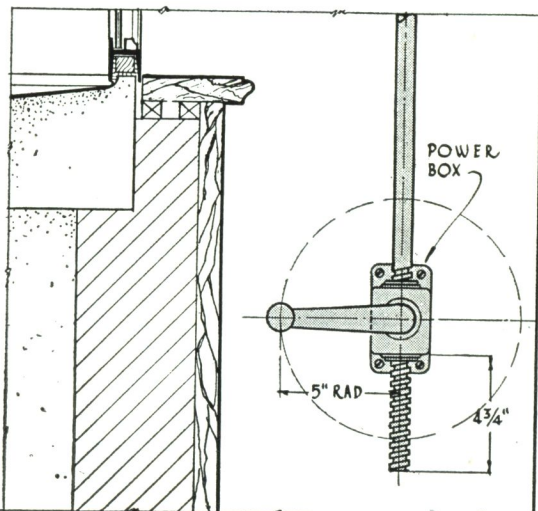
TOP HUNG (PIVOTED 4 IN. FROM TOP OR TOP HINGED)

NOT MORE THAN 100 SQ. FT. NOR MORE THAN 10 VENTS.  
HORIZONTAL SHAFT NOT MORE THAN 15 FT. LONG ON ONE RUN.

### MATERIAL

OPERATORS ARE FURNISHED WITH STEEL SHAFTS AND SOLID BRONZE OR MALLEABLE IRON FITTINGS. MITRE GEARS ARE ALWAYS BRONZE. GEAR BOX MAY BE IRON OR BRONZE

- |                 |                                    |                   |                              |
|-----------------|------------------------------------|-------------------|------------------------------|
| ① VENT CLIP     | } 2 PER VENT                       | ⑤ POWER ARM       | } ONE PER HORIZONTAL SHAFT   |
| ② VENT ROD      |                                    | ⑥ CONNECTING LINK |                              |
| ③ VENT ARM      |                                    | ⑦ CROSS HEAD      |                              |
| ④ SHAFT BRACKET | { AT ENDS OF SHAFT AND AT MULLIONS | ⑧ SHAFT GUIDE     | { NOT MORE THAN 6 FT. APART. |



SCALE  
FOR DETAILS  
1 1/2" = 1'-0"

• OPERATOR • WITH • VERTICAL • SCREW • SHAFT •  
• APPLIED • TO • CENTER • PIVOTED • CASEMENTS •  
• LUPTON • CASEMENT • OPERATOR ~ SCREW • TYPE •

PLATE NO.  
W-2  
AUGUST 1929



## -LIMITS-

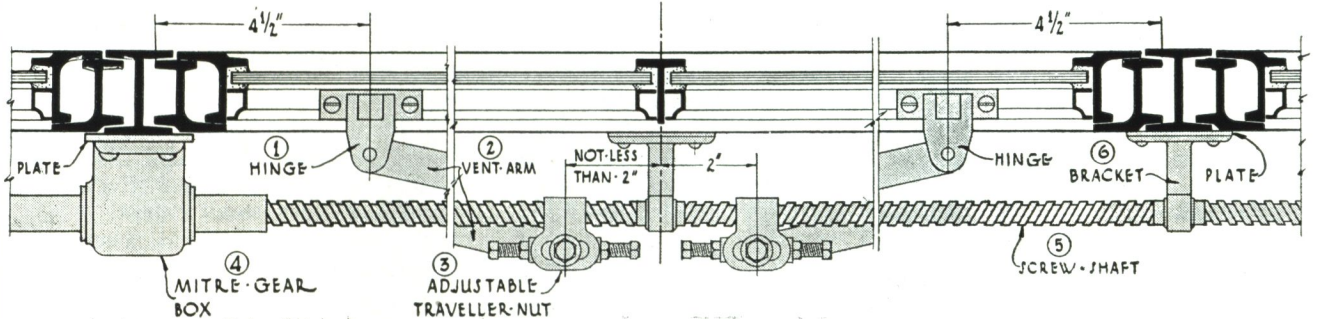
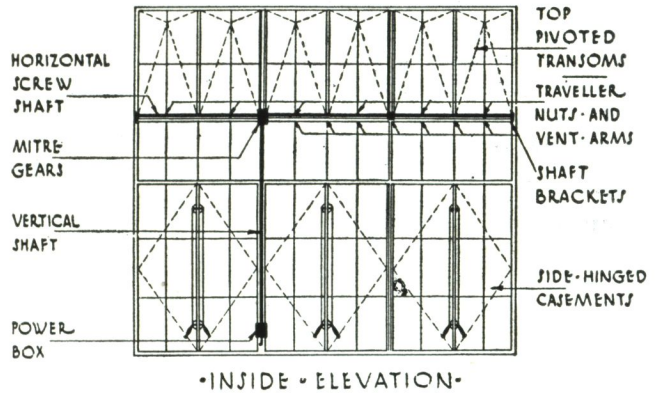
TOP-HUNG-(PIVOTED 4-IN. FROM TOP OR TOP-HINGED)  
NOT MORE THAN 90 SQ. FT. OR 9 VENTS • SHAFT NOT MORE THAN  
10 FT. EITHER SIDE OF MITER-GEAR BOX

PIVOTED-(PIVOTED 2-IN. ABOVE CENTER)  
NOT MORE THAN 120 SQ. FT. OR 12 VENTS • SHAFT NOT MORE THAN  
15 FT. EITHER SIDE OF MITER-GEAR BOX.

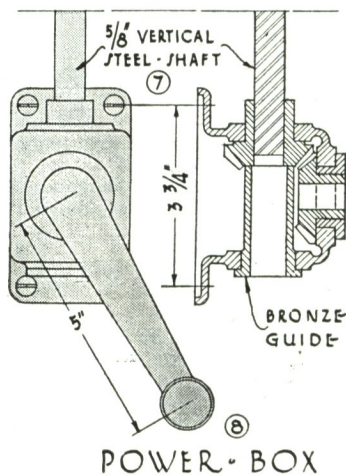
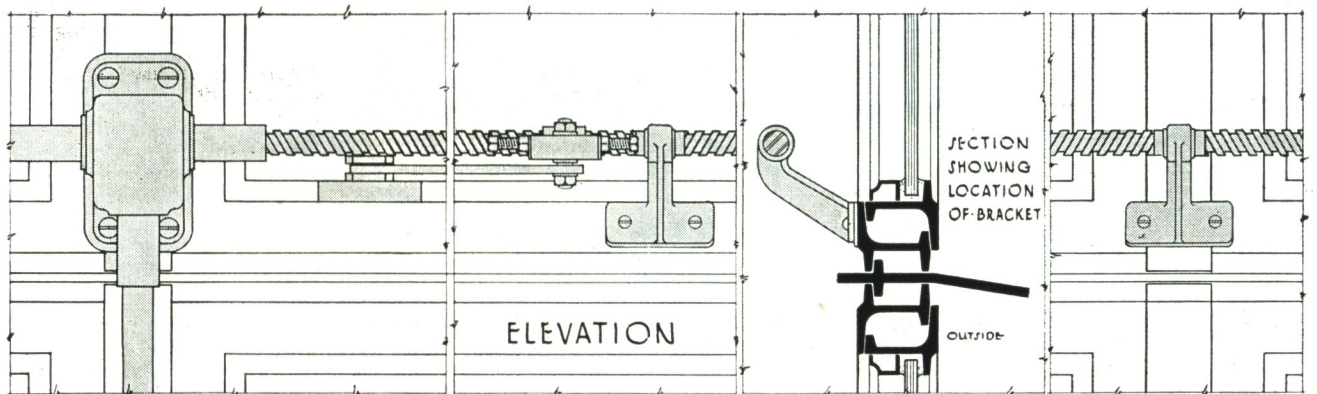
## -MATERIAL-

OPERATORS ARE FURNISHED WITH STEEL SHAFTS AND SOLID BRONZE  
OR MALLEABLE IRON FITTINGS • FINISH IS BRONZE POLISHED OR  
MALLEABLE IRON PAINTED

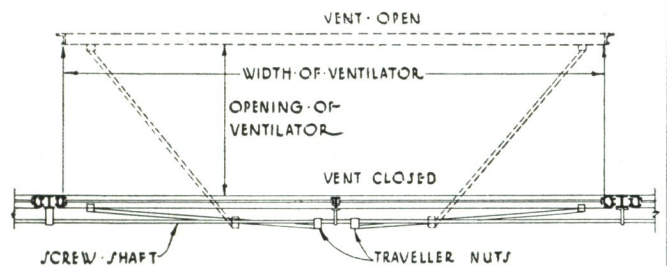
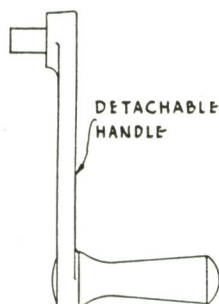
- |                                      |                    |
|--------------------------------------|--------------------|
| ① HINGE & BRACKET                    | ⑤ SCREW • SHAFT    |
| ② VENT • ARM                         | ⑥ SHAFT • BRACKET  |
| ③ TRAVELLER • NUT                    | ⑦ VERTICAL • SHAFT |
| ④ MITER • GEAR • BOX (2, 3 OR 4 WAY) | ⑧ POWER • BOX      |



PLAN



NOTE  
Gears are always  
Bronze • Case may  
be Malleable Iron  
or Bronze

PLAN • DIAGRAM  
NOT TO SCALE

OPENING OF VENTILATOR VARIES WITH  
WIDTH OF VENTILATOR AND IS EQUAL  
TO APPROXIMATELY 6 IN. LESS THAN  
ONE HALF THE WIDTH OF THE  
VENTILATOR

SCALE  
FOR DETAILS  
3" = 1'-0"

OPERATOR • WITH • HORIZONTAL • SCREW • SHAFT  
APPLIED • TO • TOP • PIVOTED • TRANSOMS  
LUPTON • CASEMENT • OPERATOR — SCREW • TYPE

PLATE • NO  
W-3  
AUGUST • 1929



## LUPTON ALUMINUM CASEMENTS

The durability of aluminum and its non-corroding properties have been proven by its use in the rubber, automotive and aircraft industries. Aluminum casements are durable, have a low up-keep cost and a fine appearance. These qualities make them the choice for all buildings where architectural design requires the distinctive in windows.

**Producing the Sections**—Lupton Aluminum Casement bars are made of a special alloy and formed by extruding which assures dense sections of unsurpassed uniformity. Strength compares favorably with mild steel with but approximately one-third the weight of steel. All sections are specially designed for exclusive use in Lupton Aluminum Casements.

**Fabricating the Casements**—A special gas-welding process eliminates the difficulties incident to welding aluminum by ordinary methods. After welding, excess material is cut away, leaving pure metal in the welded area, and assuring a strong, solid joint.

**Finish**—Aluminum Casements are carefully brushed and dipped in a special bath which removes grease, grime and flux, and leaves the metal with a soft gray lustre. They are then rinsed and dried. This is the standard finish.

Polished finish is more costly. All exposed surfaces are polished to a high reflecting finish. Finish must be

protected with several coats of clear varnish or other coating.

Sandblast finish can also be had at a cost slightly above that of the standard finish.

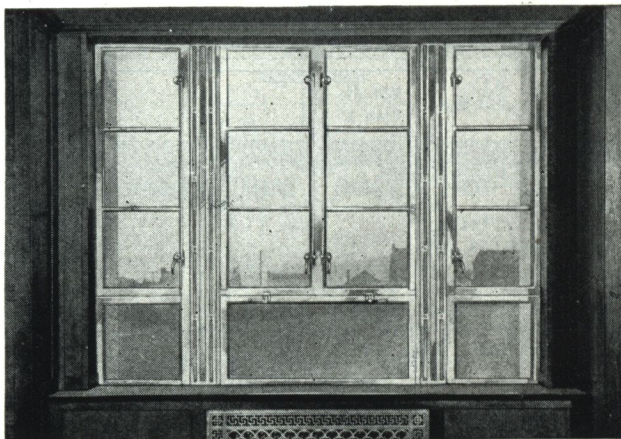
**Hardware**—The hardware is white bronze. Where auxiliary latches are used, aluminum tubing connects the latch with locking handle. Hardware backing plates are welded in position.

**Types of Aluminum Casements**—Side hinged open-out casements are recommended wherever possible to use them. Transoms may be projected out-at-bottom or in-at-top. Maximum sizes are given on page 29. Composite Windows can be built up as shown on page 30. Outside putty glazing is not recommended.

**Some Chemical Properties of Aluminum**—Aluminum is not appreciably affected by the atmosphere, steam or boiling water. Strong solutions of caustic alkalis and hydrochloric acid attack aluminum. Ammonia and nitric acid also act on it. Sea water affects it to a very small extent.

Aluminum when heated will react with concentrated sulphuric acid, but the diluted acid has little effect on it.

*Note:* Precautionary measures should be taken to prevent the use of the injurious chemicals listed above in window-cleaning fluids or in cleaning solutions used for washing stone work, etc. Aluminum can be restored to its natural color by rubbing with very fine emery paper or fine steel wool.



Research Laboratory Building, Aluminum Company of America, New Kensington, Pa.

HENRY HORNBOSTEL, Architect P. R. L. HOGNER, Associate Architect

### SPECIFICATION FOR LUPTON ALUMINUM CASEMENTS

#### Work Included

1. All windows called for in these specifications or shown on the drawings shall be Aluminum Casement Windows, manufactured by DAVID LUPTON'S SONS Co., Philadelphia, Pa.

#### Members

2. The members shall be of special alloy, specially rolled in solid one-piece sections.

3. The weathering of ventilators shall be made by double contacts of the members without the use of built up or added sections.

#### Assembly

4. All members shall be accurately straightened and true. All joints shall be welded, eliminating all riveted joints. Exposed welded surfaces shall be ground flush with members. Plates to receive handles shall be solidly welded in place. Face members shall be free from hammer marks and sight lines shall be carefully preserved. All aluminum casements shall be designed for inside glazing with glazing stops.

#### Glazing Stops

5. Glazing stops shall be of the details shown on window manufacturers' standard drawings and made of extruded aluminum sections. All glazing stops to be accurately and carefully fitted and fastened with low round head aluminum screws.

#### Finish

6. Casements shall have natural extruded aluminum finish, brushed and dipped in cleaning bath before leaving the factory.

*Note:* Sandblast or highly polished and lacquered finish may be specified if desired.

#### Hardware

7. Hinged casements shall be hung on specially designed aluminum friction hinges constructed with non-corrosive parts.

All friction hinges to be securely welded to frame and ventilator members.

*Note:* Where friction hinges are not desired, specify cadmium-plated bronze hinges and white bronze sill adjusters. Sill adjusters shall be substantially made and shall hold the window at various angles of opening.

8. Where projected ventilators occur, all parts of projected movement shall be made of special alloy aluminum.

9. All hardware shall be white bronze attached with white bronze screws. Strike wedges are white bronze. All hardware shall have dull finish, lacquered.

#### Calking Cement (See page 1)

10. The window manufacturer shall furnish non-staining elastic calking cement (as indicated on window manufacturers' standard details) in quantities sufficient to make head, sill, jambs, mullions and imposts weathertight. Wooden filler-strips shall be furnished and used where indicated on details.

#### Erection (See page 1)

11. All Aluminum Casements shall be erected in prepared openings by the window contractor.

12. They shall be set plumb and true, properly aligned and securely anchored before glazing. Mullions and imposts shall be bolted securely to frames. Calking cement and wooden filler-strips shall be neatly applied at points indicated on window manufacturers' standard details.

*Note:* Include in the masonry specifications that all masonry openings shall be accurately constructed in accordance with the installation details for Aluminum Casements. All grouting, pointing, etc., should be done by the mason contractor after the windows are set.

#### Glass and Glazing

*Note:* (See also pages 1 and 4.) Specify glass and glazing under proper heading elsewhere in general specifications of other trades.

(a) Do not specify single thickness glass.

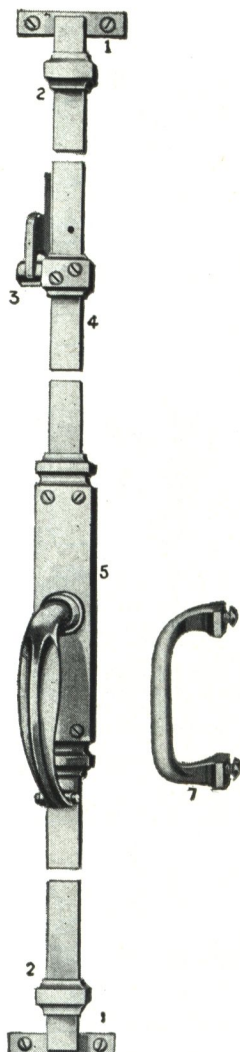
(b) Specify a high grade metal casement putty.

(c) Specify that aluminum casements shall be glazed from the inside, the glass set in a bed of putty and held by the Lupton aluminum glazing stops.



## HARDWARE FOR ALUMINUM CASEMENTS

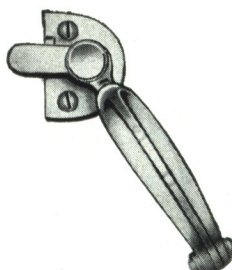
*Hardware is white bronze with dull, lacquered finish unless noted otherwise*



### Cremone Bolt for Double Casements

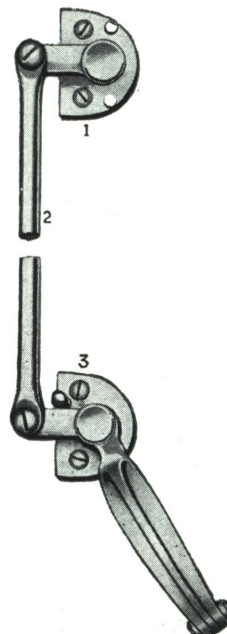
Consists of the following:

1. Keeper used at top and bottom of swing-out casements.
2. Bar Guide (spaced approx. 1 ft. 0 in. apart).
3. Center Latch and Keeper (spaced approx. 2 ft. 0 in. apart).
4. Bar,  $\frac{1}{2} \times \frac{1}{4}$  in.
5. Handle and Case
7. Pull Handle



### Cam Handle

No. 433 shown (opposite hand No. 434)  
Used on side-hinged casements up to 4 ft. 0 in. high

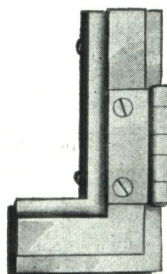


### Double Locking Device

Used on side-hinged casements, over 4 ft. 0 in. and up to 8 ft. 0 in. high. Consists of the following:

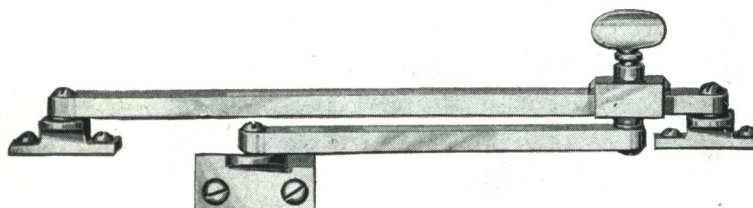
1. Auxiliary Latch No. 437.
2.  $\frac{1}{2}$  in. White Bronze Tube.
3. Cam Handle No. 435 shown (opposite hand No. 436).

Triple Locking Device for use on casements over 8 ft. 0 in. high is similar, with an additional auxiliary latch.



### Butt Hinge

Bronze with Cadmium or nickel-plating



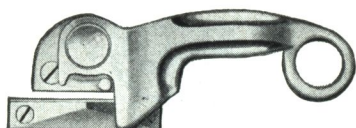
### Sliding Adjuster

For Swing-out casements. Used with butt hinges



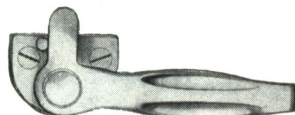
## HARDWARE FOR ALUMINUM CASEMENTS

Hardware is white bronze with dull, lacquered finish unless noted otherwise.



**Ring Handle No. 432**

For Projected-Out-at-Bottom ventilators beyond reach from floor. Also used in Aluminum Pivoted and Commercial Projected Windows described on page 93



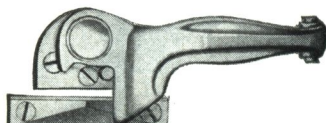
**Ring Handle No. 429**

For Projected-In-at-Top ventilators beyond reach from floor



**Pull-Down Ring No. 439**

Used at top of Projected-Out-at-Bottom ventilators



**Cam Handle**

No. 430 shown (opposite hand No. 431)

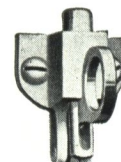
Used at bottom of Projected-Out-at-Bottom ventilators within reach from floor. One handle used for ventilators up to 3 ft. 6 in. wide, two handles for wider ventilators



**Cam Handle**

No. 427 shown (opposite hand No. 428)

Used at top of Projected-In-at-Top ventilators within reach from floor. One handle used for ventilators up to 3 ft. 6 in. wide. Two handles used for wider ventilators. Also used with Aluminum Commercial Projected Windows described on page 93



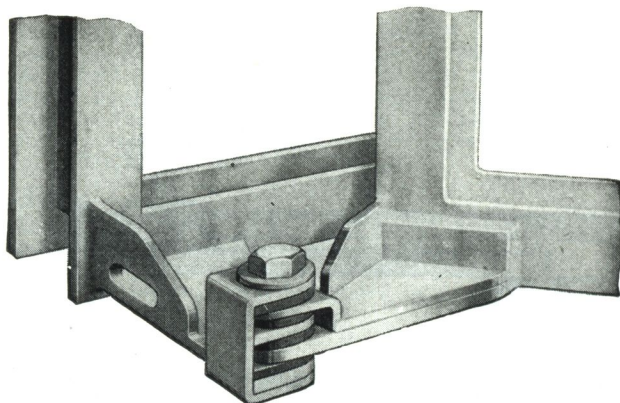
**Spring Catch No. 422**

Used at top of Projected-In-at-Top ventilators beyond reach from floor as an alternate to the Ring Handle No. 429.

Also used for Aluminum Commercial Projected Windows, described on page 93

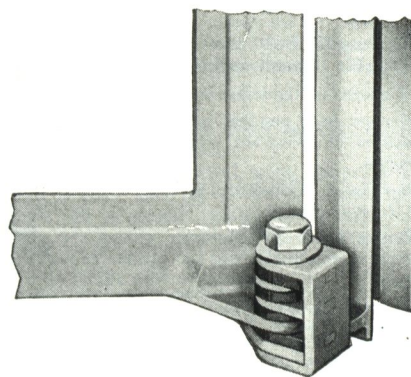
### Friction Hinges

Friction hinges of aluminum plate hold casements at any degree of opening up to 180° and eliminate the need of sliding adjusters. Made in two types, close up and extended, and attached securely to ventilator and frame by welding.



**Extended Type Friction Hinge**

This hinge permits cleaning window from inside the building

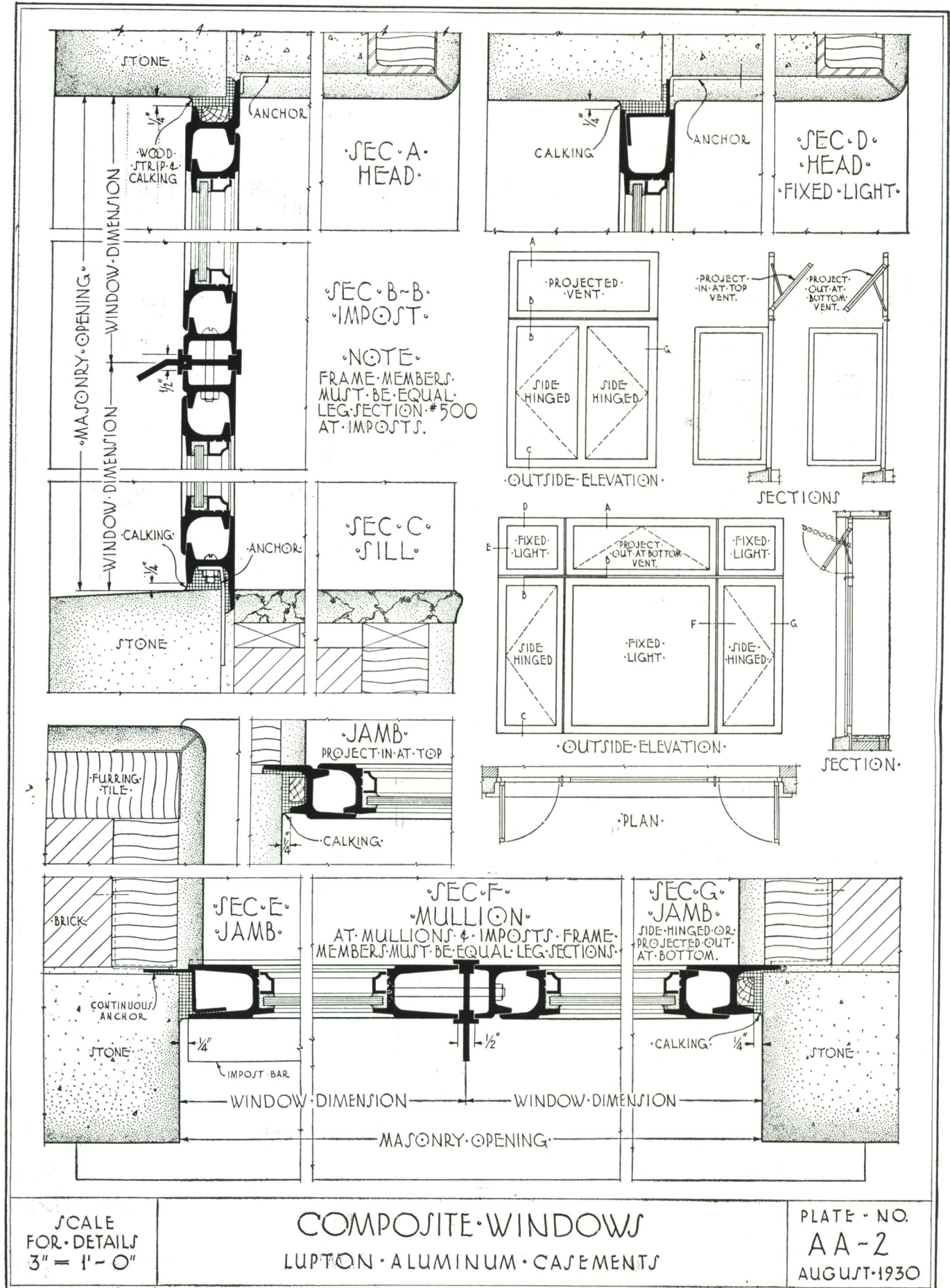


**Close-up Type Friction Hinge**

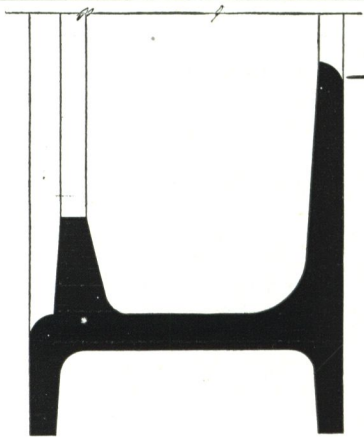






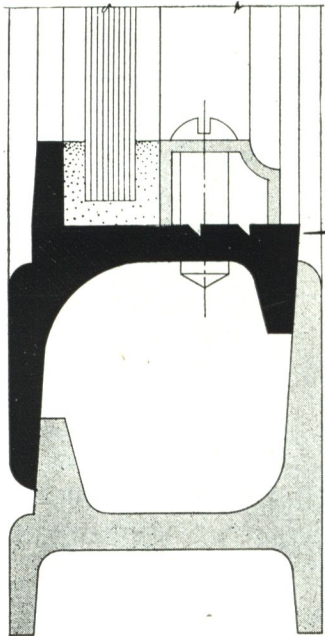






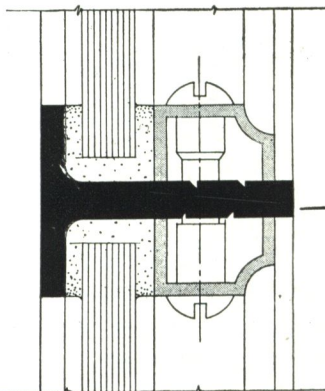
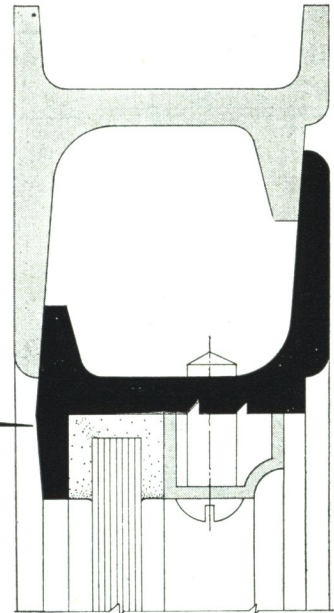
SECTION 500  
FRAME MEMBER FOR  
INSTALLATIONS IN CUT  
STONE TRIM OR METAL  
SUB-FRAMES.

CONTINUOUS FIN  
ALUMINUM FIN USED  
WITH EQUAL LEG FRAME MEMBER  
FOR INSTALLATION IN BRICK,  
STONE VENEER OR SIMILAR  
CONSTRUCTION



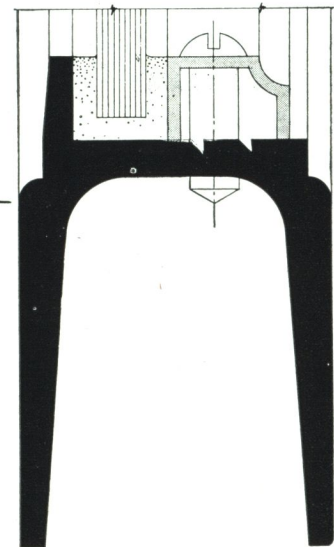
SECTION 501  
SHOWN IN COMBINATION  
WITH SEC 500 ARRANGED FOR  
SWING-OUT CASEMENTS

SECTION 502  
SHOWN IN COMBINATION WITH  
SEC 500. AT HEAD OF A PRO-  
JECTED OUT AT BOTTOM  
CASEMENTS OR PROJECTED  
IN AT TOP CASEMENTS.



SECTION 503  
FRAME MEMBER FOR  
STATIONARY UNITS

SECTION 504  
HORIZONTAL OR VERTICAL  
MUNTIN.

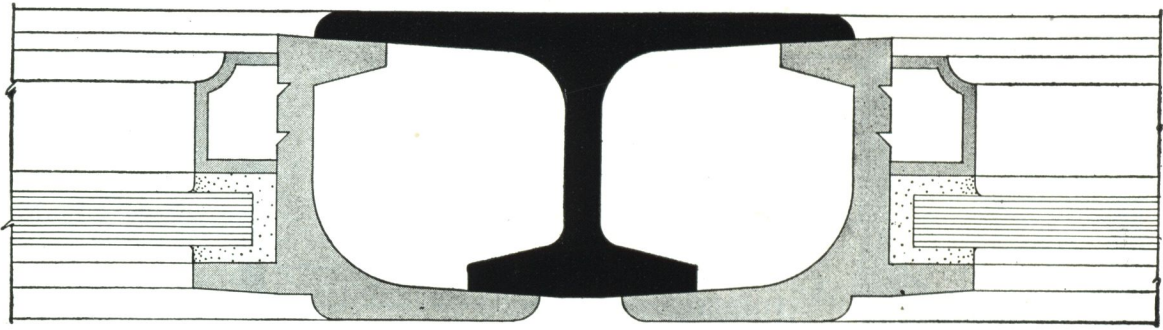


SCALE  
FULL-SIZE

FULL-SIZE SECTIONS  
LUPTON ALUMINUM CASEMENTS

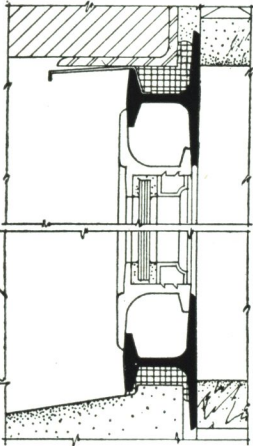
PLATE NO  
AA-3  
AUGUST 1930





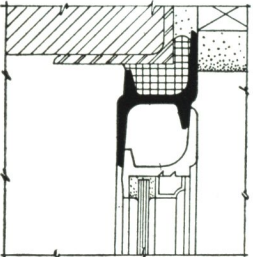
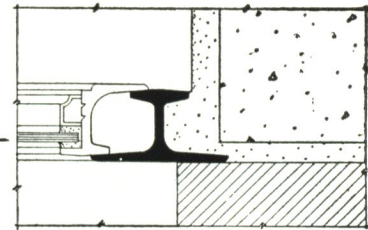
## SECTION · 505

USED · AS · A · MEETING · STILE · BETWEEN  
TWO · VENTILATORS



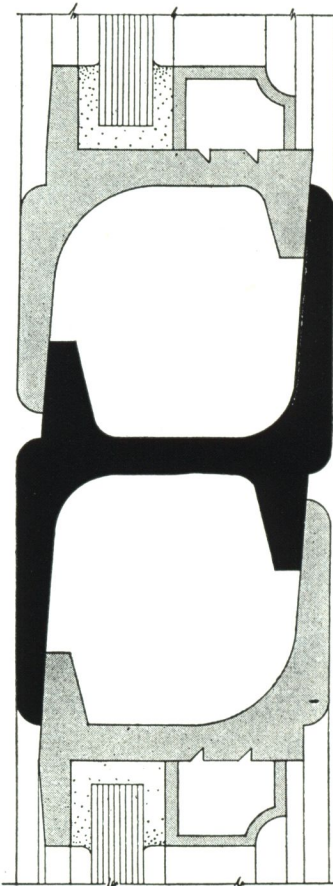
## SECTION · 505

USED · AS · FRAME · MEMBER  
LONG · LEG · INSIDE · FOR  
HEAD · OR · SILL ·  
LONG · LEG · OUTSIDE  
FOR · JAMBS ·



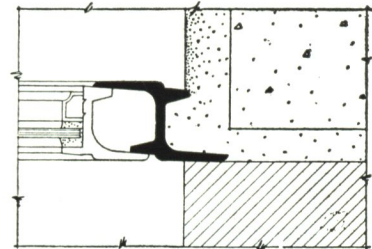
## SECTION · 506

USED AS · FRAME  
MEMBER · LONG  
LEG INSIDE AT  
HEAD · // // // // //  
(PROJECTED · OUT  
AT · BOTTOM · VENT)



## SECTION · 506

USED · AS · A · MEETING · RAIL  
BETWEEN · TWO · VENTILATORS



## SECTION · 506

USED · AS · A · FRAME  
MEMBER · LONG · LEG  
OUTSIDE AT · JAMB

SCALE  
FULL · SIZE

FULL · SIZE · SECTIONS  
LUPTON · ALUMINUM · CASEMENTS

PLATE · NO.  
AA - 4  
AUGUST · 1930



## LUPTON STEEL WINDOWS FOR STANDARD SIZE OPENINGS

Applying to Casements the principles of standardization approved by the U. S. Department of Commerce, Lupton has designed three general types of outside glazed casements, in a wide range of standard sizes.

These casements are available at moderate cost for

use in office buildings, hotels, apartment houses, hospitals and similar high grade structures.

Ventilators are of the projected type. A friction shoe holds them at any reasonable degree of opening eliminating sill hardware. Metal screens are designed to be attached to windows where screening is desired.

*Note: The Combination and In-at-Top Projected Casements described on this and following pages; the Architectural Projected Windows described on pages 66 to 71; and the Double Hung Windows described on pages 72 to 75 are all made in the same 50 standard sizes.*

### Lupton Combination Projected Casements

These windows, by their unique design, bring a new high standard of natural ventilation to multiple-story buildings. They are the only windows that afford such positive air control. A horizontal inward-opening ventilator located at the bottom of the window admits fresh air without draft.

Above, forming the upper portion of the window, are two side-projected ventilators. By closing one of these and slightly opening the other against the breeze, an air movement is induced which siphons used air out of the window.

Thus, Lupton Combination Casements provide easily controlled, balanced ventilation through every window opening.

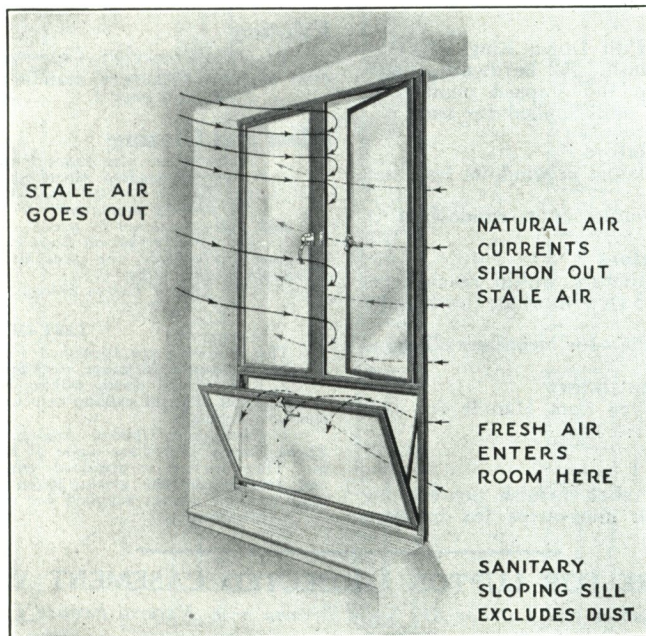
Lupton Single Casements—Details of these windows are the same as in the Lupton Combination Casements and have the same

structural and 100% ventilation advantages. They offer an almost limitless number of arrangements and opening sizes when used in any of the many combinations of which they are capable, both in the horizontal and vertical positions.

### Lupton Projected-In-at-Top Casements

Maintenance of strict privacy, adequate ventilation without draft and abundant lighting are features of these windows.

They are particularly desirable for medical institutions, art museums, hospitals, solariums and similar buildings.



**Diagram Showing How Lupton Combination Casements Assure Balanced Ventilation**

Dotted arrows show natural fresh-air currents. Solid arrows show stale air moving outward by means of siphon action fully described in text

## SPECIFICATION FOR LUPTON PROJECTED CASEMENT WINDOWS

### Work Included

1. Furnish and install where shown on drawings, Lupton Steel Projected Casement Windows, manufactured by DAVID LUPTON'S SONS CO., Philadelphia, Pa.

### Materials

2. Ventilator and frame members shall be made of copper-bearing, rust-resisting steel, specially rolled in solid, one-piece sections.

3. Vertical Mullions shall be of 13 gauge plate, formed.

4. Imposts shall be of  $\frac{3}{8}$  in. thick, steel plate, with a 14 gauge galvanized weathering member.

5. Glazing clips for lights larger than 336 sq. in. shall be angle clips 2 in. long of 20 gauge galvanized steel, held in place by low round head steel machine screws.

\*Smaller lights shall have rustproofed wire glazing clips.

\*Note: All standard units are furnished with angle clips.

Note: See List of Extras at end of specification.

### Construction

6. All Projected Casements shall be designed for outside glazing.

7. All Projected Casement Windows shall be straight and true, members in alignment and surfaces in a plane.

8. Three sides of the ventilator shall be made of bars weighing not less than 1.7 lbs. per ft. and the remaining side of a bar weighing not less than 1.82 lbs. per ft. Frames shall be made of bars weighing not less than 2.14 lbs. per ft.

9. At the corners and joints of the frames and ventilators the members shall be mitered or notched, framed together and heavily welded so as to make a rigid, tight connection.

Exposed, welded surfaces shall be ground flush with members. The frame and ventilator shall form a two-point, flat, continuous, weathering contact.

10. Mullions and bolts for attachment shall be provided where two or more windows are placed side by side.

11. Imposts and bolts for attachment shall be provided where two or more windows are placed one above the other.

12. At the head of all Projected-Out-at-Side Ventilators a 16 gauge formed steel, hot galvanized, weather bar shall be used.



13. Fins of 13 gauge steel for Head and Jambs shall be furnished, shipped unattached and applied in the field.

*Note: See List of Extras at end of specification.*

14. Anchor Clips of 13 gauge steel for Head, Jambs and Sill shall be furnished and applied in field.

15. Muntins shall be T bar section, tenoned and riveted to frame or ventilator members, notched and welded at intersections with exposed surfaces of weld ground flush.

*Note: See List of Extras at end of specification.*

*Note: Muntins are not standard but may be had if specified at added cost.*

16. Ventilators shall be accurately pivoted on two ventilator arms of solid steel. The two ventilator arms shall be attached to the ventilator and frame members by malleable iron arm blocks with brass pivot pins and washers. Ventilators shall be equipped with two bronze friction shoes, sliding in the outside frame member so as to guide the ventilator and prevent rattling. The friction shoes shall be equipped with a rustproof steel spring and adjusting screw, so designed to insure constant friction and hold the ventilator in an open position without the use of fasteners or adjusters.

## Hardware

17. All Handles, Latches and Pull Down Rings shall be solid bronze with natural bronze finish. All hardware (listed below) shall be fitted in the shop and shipped unattached, carefully packed to prevent damage until applied for use.

*Note: The following hardware is standard:*

### For Projected-Out-at-Side Ventilators

Bronze Cam Handle—for ventilators in windows less than 4 ft. 6 in. in height.

Double Locking Device—for ventilators in windows 4 ft. 6 in. or more in height.

### For Projected-In-at-Top Ventilators

Bronze Cam Handle—for ventilators within reach from floor, one handle on windows up to 3 ft. 6 in. wide; two handles on windows over 3 ft. 6 in. wide.

Bronze Ring Type Cam Handle—for ventilators beyond reach from floor.

### For Projected-Out-at-Bottom Ventilators

Pull Down Ring and Ring Type Cam Handle for pole operation.

## Calking Cement (See Page 1)

18. The window manufacturer shall furnish non-staining elastic calking cement and wooden filler-strips for mullions

and imposts as shown in window manufacturer's standard details.

*Note: See List of Extras at end of specification.*

## Erection (See Page 1)

19. All Projected Casement Windows shall be erected in prepared openings by the window contractor (unless otherwise specified).

20. All Projected Casement Windows shall be set plumb and true, properly aligned and securely anchored before glazing. Mullions and Imposts (and continuous fins if specified) shall be bolted securely to windows. Calking cement and wooden filler-strips shall be neatly applied at mullions and imposts as shown on window manufacturer's standard details.

*Note: See List of Extras at end of specification.*

*Note: Include in the masonry specifications that all masonry openings shall be accurately constructed in accordance with the installation details for Projected Casement Windows. Note that when the continuous fins are built in the masonry, the placing of the furring tile at the Jambs must be delayed until after the windows are set. All grouting, pointing, etc., should be done by the mason contractor after the windows are set.*

## Painting

21. All Projected Casement Windows shall receive one coat of manufacturers' standard dark gray paint, oven-dried.

*Note: See page 1.*

## Glass and Glazing

*Note: (See also pages 1 and 4.) Specify glass and glazing under proper heading elsewhere in specifications.*

(a) Do not specify single thickness glass.

(b) Specify high-grade steel casement putty (ordinary wood sash putty must not be used).

(c) Specify that all Steel Projected Casements shall be glazed from the outside, the glass set in a bed of putty and held by angle glazing clips.

*See List of Extras below.*

### LIST OF EXTRAS

The following are furnished when specified at an added cost.

1. Continuous 13 gauge steel fins for head and jambs.

2. Non-staining elastic calking cement.

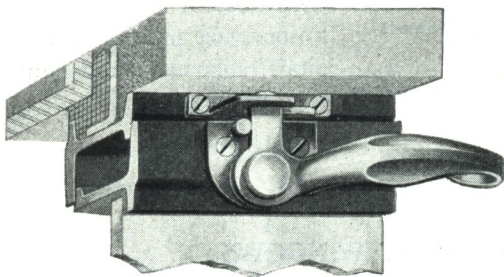
3. Application of calking cement at time of erection as shown on our standard details.

4. Continuous Glazing Angles to be substituted for Glazing clips. These glazing angles are made of hot rolled steel angle section  $\frac{1}{8} \times \frac{1}{8} \times \frac{1}{8}$  in. They are cut in standard lengths with mitered ends, shipped loose and attached by the glazing contractor with the round head, udylited, steel machine screws supplied for the purpose.

5. Muntins.

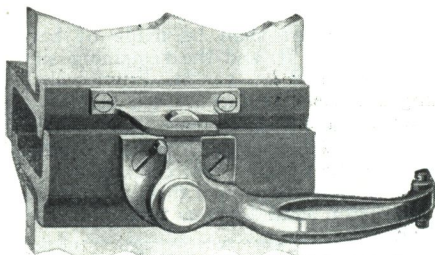
## HARDWARE FOR LUPTON PROJECTED CASEMENT WINDOWS

*All Handles and Latches Are Solid Bronze with Natural Bronze Finish*



**Ring Type Cam Handle  
No. 330**

Used at center of Projected-In-at-Top Ventilators beyond reach from floor. For pole operation.



**Cam Handle**

No. 311 shown (opposite hand No. 312)

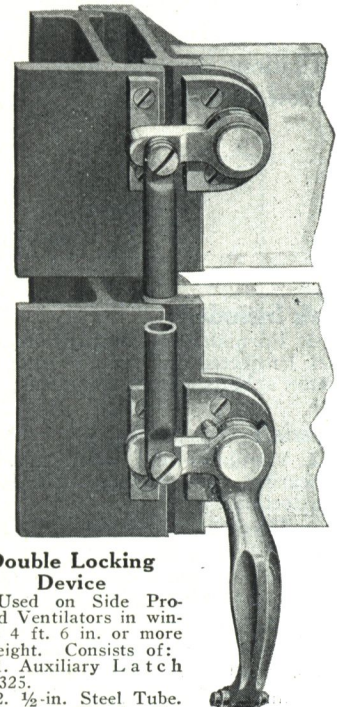
Used on Projected-In-at-Top Ventilators within reach from floor. One handle for windows up to 3 ft. 6 in. wide. Two handles for windows over 3 ft. 6 in. wide.



**Cam Handle**

No. 315 shown (opposite hand No. 316)

Used on Side Projected Ventilators in windows less than 4 ft. 6 in. in height. Mounted on Steel Backing Plate No. 2238 welded to frame of ventilator



**Double Locking  
Device**

Used on Side Projected Ventilators in windows 4 ft. 6 in. or more in height. Consists of:

1. Auxiliary Latch No. 325.

2.  $\frac{1}{2}$ -in. Steel Tube.

3. Cam Handle No.

322 shown (opposite hand No. 323). Both Auxiliary Latch and Cam Handle are mounted on Steel Backing Plates No. 2238 welded to frame of ventilator



# COMBINATION • PROJECTED • CASEMENTS 100 PER • CENT • VENTILATED

• STANDARD • TYPES • AND • SIZES •

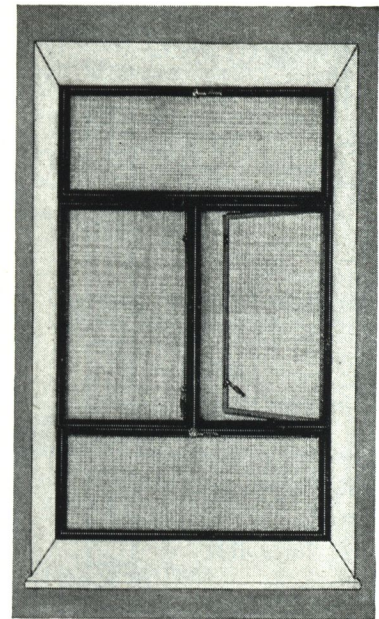
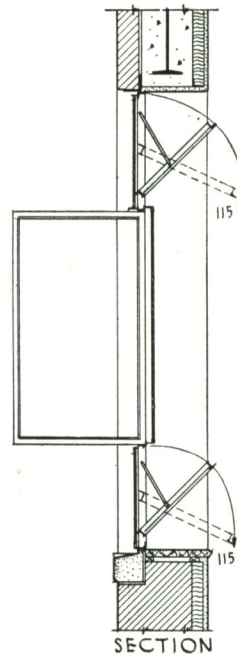
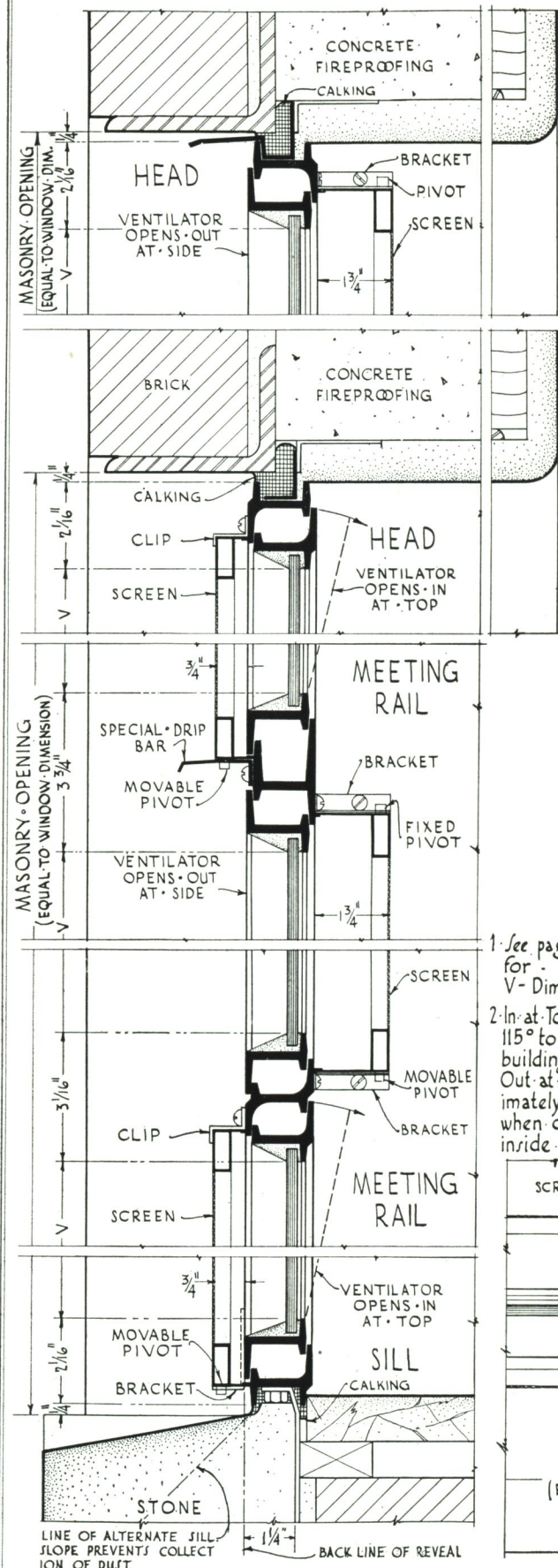
| WINDOW<br>DIMENSION | * → 3'-0"                                                                           | 3'-6"                                                                               | 4'-0"                                                                               | 4'-6"                                                                                | 5'-0"                                                                                 | V-DIMEN.<br>SEE DETAILS FOR<br>MEASURE POINTS  |
|---------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------|
|                     | GLASS-SIZE { 15"<br>33 1/4"                                                         | 18"<br>39 1/4"                                                                      | 21"<br>45 1/4"                                                                      | 24"<br>51 1/4"                                                                       | 27"<br>57 1/4"                                                                        |                                                |
| 4' - 6"             | 50"                                                                                 |                                                                                     |                                                                                     |                                                                                      |                                                                                       | 4' - 1 3/8"                                    |
|                     |    |    |    |    |    |                                                |
|                     | PS-3046                                                                             | PS-3646                                                                             | PS-4046                                                                             | PS-4646                                                                              | PS-5046                                                                               |                                                |
| 5' - 0"             | 56"                                                                                 |                                                                                     |                                                                                     |                                                                                      |                                                                                       | 4' - 7 3/8"                                    |
|                     |    |    |    |    |    |                                                |
|                     | PS-3050                                                                             | PS-3650                                                                             | PS-4050                                                                             | PS-4650                                                                              | PS-5050                                                                               |                                                |
| 5' - 6"             | 41 3/4"<br>17 3/4"                                                                  |                                                                                     |                                                                                     |                                                                                      |                                                                                       | 3' - 5 5/32"<br>1' - 5 5/32"                   |
|                     |    |    |    |    |    |                                                |
|                     | PST-3056                                                                            | PST-3656                                                                            | PST-4056                                                                            | PST-4656                                                                             | PST-5056                                                                              |                                                |
| 6' - 0"             | 47 3/4"<br>17 3/4"                                                                  |                                                                                     |                                                                                     |                                                                                      |                                                                                       | 3' - 11 5/32"<br>1' - 5 5/32"                  |
|                     |    |    |    |    |    |                                                |
|                     | PST-3060                                                                            | PST-3660                                                                            | PST-4060                                                                            | PST-4660                                                                             | PST-5060                                                                              |                                                |
| 6' - 6"             | 53 3/4"<br>17 3/4"                                                                  |                                                                                     |                                                                                     |                                                                                      |                                                                                       | 4' - 5 5/32"<br>1' - 5 5/32"                   |
|                     |    |    |    |    |    |                                                |
|                     | PST-3066                                                                            | PST-3666                                                                            | PST-4066                                                                            | PST-4666                                                                             | PST-5066                                                                              |                                                |
| 7' - 0"             | 53 3/4"<br>23 3/4"                                                                  |                                                                                     |                                                                                     |                                                                                      |                                                                                       | 4' - 5 5/32"<br>1' - 11 5/32"                  |
|                     |  |  |  |  |  |                                                |
|                     | PST-3070                                                                            | PST-3670                                                                            | PST-4070                                                                            | PST-4670                                                                             | PST-5070                                                                              |                                                |
| 7' - 6"             | 19"<br>41 3/4"<br>19 5/8"                                                           |                                                                                     |                                                                                     |                                                                                      |                                                                                       | 1' - 6 23/64"<br>3' - 5 5/32"<br>1' - 7 3/64"  |
|                     |  |  |  |  |  |                                                |
|                     | PST-3076                                                                            | PST-3676                                                                            | PST-4076                                                                            | PST-4676                                                                             | PST-5076                                                                              |                                                |
| 8' - 0"             | 19"<br>47 3/4"<br>19 5/8"                                                           |                                                                                     |                                                                                     |                                                                                      |                                                                                       | 1' - 6 23/64"<br>3' - 11 5/32"<br>1' - 7 3/64" |
|                     |  |  |  |  |  |                                                |
|                     | PST-3080                                                                            | PST-3680                                                                            | PST-4080                                                                            | PST-4680                                                                             | PST-5080                                                                              |                                                |
| 8' - 6"             | 19"<br>53 3/4"<br>19 5/8"                                                           |                                                                                     |                                                                                     |                                                                                      |                                                                                       | 1' - 6 23/64"<br>4' - 5 5/32"<br>1' - 7 3/64"  |
|                     |  |  |  |  |  |                                                |
|                     | PST-3086                                                                            | PST-3686                                                                            | PST-4086                                                                            | PST-4686                                                                             | PST-5086                                                                              |                                                |
| 9' - 0"             | 25"<br>53 3/4"<br>19 5/8"                                                           |                                                                                     |                                                                                     |                                                                                      |                                                                                       | 2' - 0 23/64"<br>4' - 5 5/32"<br>1' - 7 3/64"  |
|                     |  |  |  |  |  |                                                |
|                     | PST-3090                                                                            | PST-3690                                                                            | PST-4090                                                                            | PST-4690                                                                             | PST-5090                                                                              |                                                |

\* Window Dimension equals the Masonry  
Opening required for one unit.



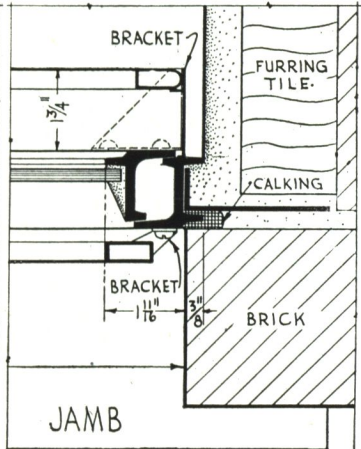
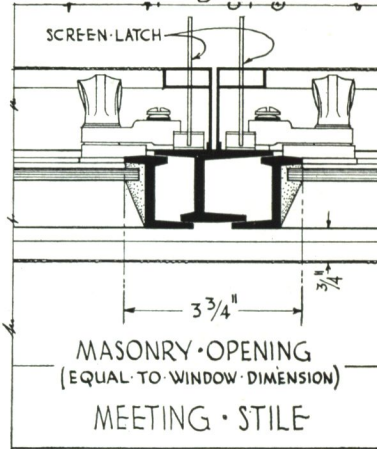
# COMBINATION PROJECTED • CASEMENTS 100 • PER • CENT • VENTILATED

SCALE • FOR • DETAILS 3" = 1'-0"



## • NOTES •

- 1- See page references at bottom of page for Full Size Sections. V- Dimensions and Mullion Details.
- 2- In-at-Top ventilators open approximately 115° to permit cleaning from inside the building. Out-at-Side ventilators have approximately 4 inches clearance at jamb when open to permit cleaning from inside the building.



Full Size Sections on pages 46 and 47  
V Dimensions on page 35  
Mullion Details on pages 40 and 45

LUPTON PAGE 36



# PROJECTED • CASEMENTS 100 PER • CENT • VENTILATED • IN • AT • TOP

• STANDARD • TYPES • AND • SIZES •

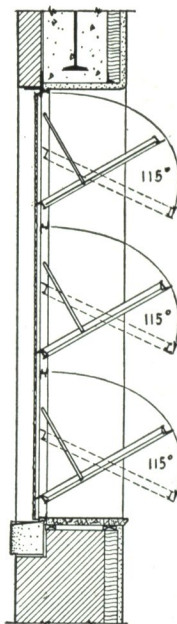
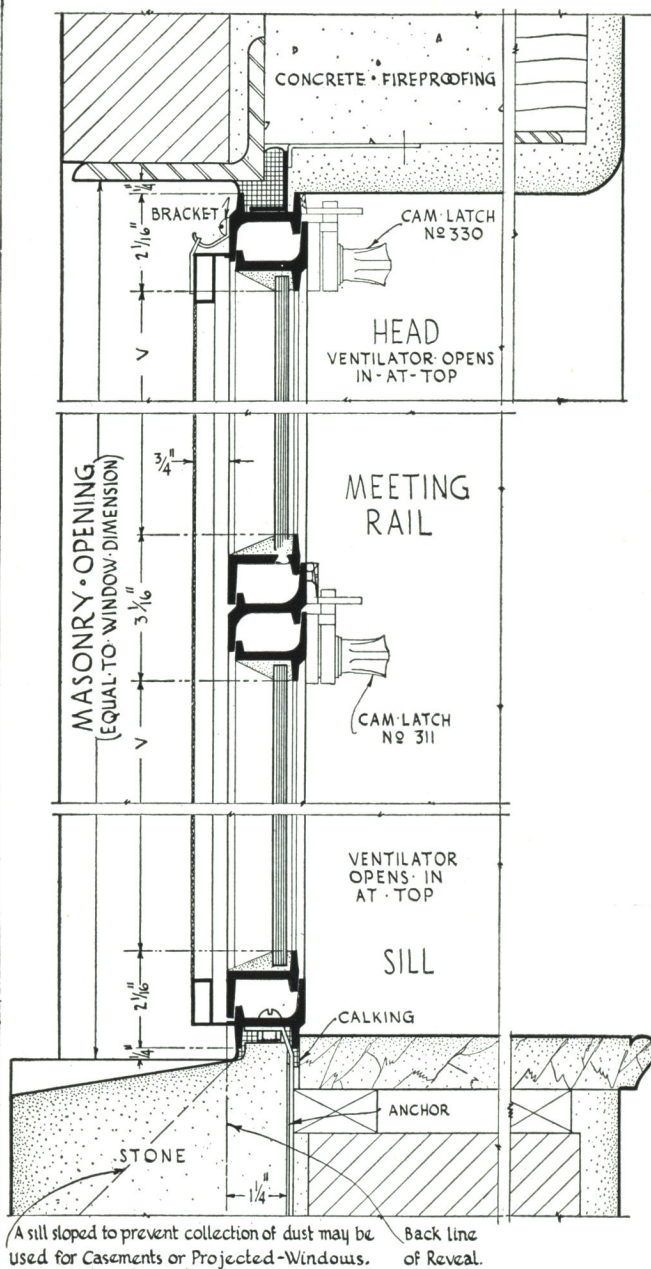
| WINDOW<br>DIMENSION * | GLASS SIZE → | 3'-0"                                                                               | 3'-6"                                                                               | 4'-0"                                                                               | 4'-6"                                                                                 | 5'-0"                                                                                 | V-DIMEN.<br>SEE DETAILS FOR<br>MEASURE POINTS |
|-----------------------|--------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------------------------------------|
|                       |              | 33 3/4"                                                                             | 39 1/4"                                                                             | 45 1/4"                                                                             | 51 1/4"                                                                               | 57 1/4"                                                                               |                                               |
| 4' - 6"               | 23 3/4"      |    |    |    |    |    | 1' - 11 5/32"                                 |
|                       | 23 3/4"      | PT-3046                                                                             | PT-3646                                                                             | PT-4046                                                                             | PT-4646                                                                               | PT-5046                                                                               | 1' - 11 5/32"                                 |
| 5' - 0"               | 17 3/4"      |    |    |    |    |    | 1' - 5 5/32"                                  |
|                       | 17 3/4"      | PT-3050                                                                             | PT-3650                                                                             | PT-4050                                                                             | PT-4650                                                                               | PT-5050                                                                               | 1' - 5 5/32"                                  |
|                       | 15 1/2"      |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       | 1' - 2 15/16"                                 |
| 5' - 6"               | 19 5/8"      |    |    |    |    |    | 1' - 7 3/64"                                  |
|                       | 19 5/8"      | PT-3056                                                                             | PT-3656                                                                             | PT-4056                                                                             | PT-4656                                                                               | PT-5056                                                                               | 1' - 7 3/64"                                  |
|                       | 17 3/4"      |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       | 1' - 5 5/32"                                  |
| 6' - 0"               | 22 5/8"      |    |    |    |    |    | 1' - 10 3/64"                                 |
|                       | 22 5/8"      | PT-3060                                                                             | PT-3660                                                                             | PT-4060                                                                             | PT-4660                                                                               | PT-5060                                                                               | 1' - 10 3/64"                                 |
|                       | 17 3/4"      |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       | 1' - 5 5/32"                                  |
| 6' - 6"               | 25 5/8"      |    |    |    |    |    | 2' - 1 3/64"                                  |
|                       | 25 5/8"      | PT-3066                                                                             | PT-3666                                                                             | PT-4066                                                                             | PT-4666                                                                               | PT-5066                                                                               | 2' - 1 3/64"                                  |
|                       | 17 3/4"      |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       | 1' - 5 5/32"                                  |
| 7' - 0"               | 25 5/8"      |  |  |  |  |  | 2' - 1 3/64"                                  |
|                       | 25 5/8"      | PT-3070                                                                             | PT-3670                                                                             | PT-4070                                                                             | PT-4670                                                                               | PT-5070                                                                               | 2' - 1 3/64"                                  |
|                       | 23 3/4"      |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       | 1' - 11 5/32"                                 |
| 7' - 6"               | 19 5/8"      |  |  |  |  |  | 1' - 7 3/64"                                  |
|                       | 19 5/8"      | PT-3076                                                                             | PT-3676                                                                             | PT-4076                                                                             | PT-4676                                                                               | PT-5076                                                                               | 1' - 7 3/64"                                  |
|                       | 19 5/8"      |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       | 1' - 7 3/64"                                  |
|                       | 19 5/8"      |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       | 1' - 7 3/64"                                  |
| 8' - 0"               | 19 5/8"      |  |  |  |  |  | 1' - 7 3/64"                                  |
|                       | 22 5/8"      | PT-3080                                                                             | PT-3680                                                                             | PT-4080                                                                             | PT-4680                                                                               | PT-5080                                                                               | 1' - 10 3/64"                                 |
|                       | 22 5/8"      |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       | 1' - 10 3/64"                                 |
|                       | 19 5/8"      |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       | 1' - 7 3/64"                                  |
| 8' - 6"               | 19 5/8"      |  |  |  |  |  | 1' - 7 3/64"                                  |
|                       | 25 5/8"      | PT-3086                                                                             | PT-3686                                                                             | PT-4086                                                                             | PT-4686                                                                               | PT-5086                                                                               | 2' - 1 3/64"                                  |
|                       | 25 5/8"      |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       | 2' - 1 3/64"                                  |
|                       | 19 5/8"      |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       | 1' - 7 3/64"                                  |
| 9' - 0"               | 25 5/8"      |  |  |  |  |  | 2' - 1 3/64"                                  |
|                       | 25 5/8"      | PT-3090                                                                             | PT-3690                                                                             | PT-4090                                                                             | PT-4690                                                                               | PT-5090                                                                               | 2' - 1 3/64"                                  |
|                       | 25 5/8"      |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       | 2' - 1 3/64"                                  |
|                       | 19 5/8"      |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       | 1' - 7 3/64"                                  |

\* Window Dimension equals the Masonry Opening required for one unit.

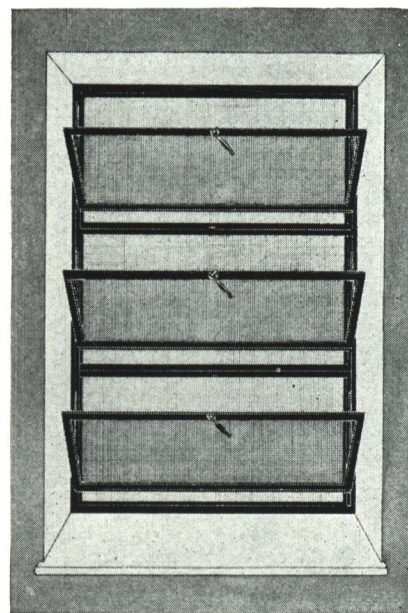


# PROJECTED • CASEMENTS 100PER • CENT • VENTILATED • IN • AT • TOP •

SCALE • FOR • DETAILS ~ 3" = 1'-0"



SECTION

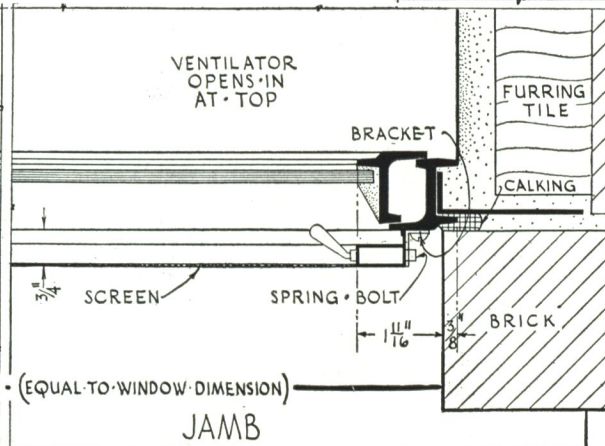
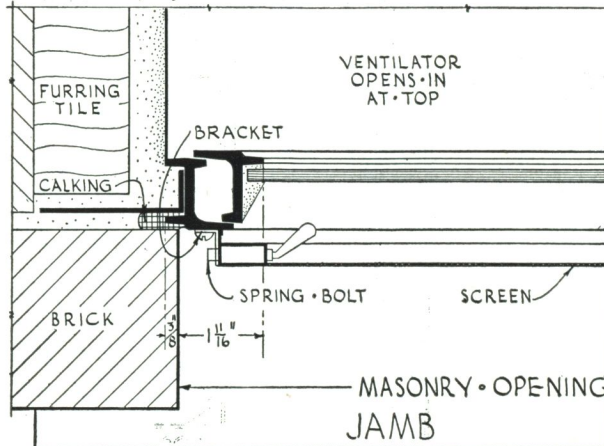
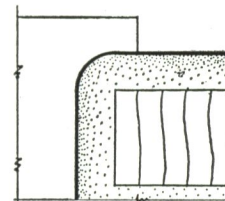


INSIDE • ELEVATION

0 1 2 3 FT.  
SCALE

## • NOTE •

1. See page references at bottom of page for Full Size Sections, V. Dimensions, and Mullion Details.
2. Ventilators open approximately 115° to permit cleaning from inside the building.



Full Size Sections on pages 46 and 47  
V. Dimensions on page 37  
Mullion Details on pages 40 and 45  
LUPTON PAGE 38



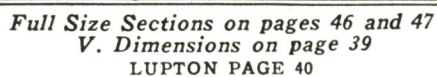
# PROJECTED • CASEMENTS PART • VENTILATED • IN • AT • TOP

LISTED • SPECIAL • TYPES • IN • STANDARD • SIZES

| WINDOW DIMENSION * | GLASS SIZE                               | 3'-0"                                                                                           | 3'-6"                                                                                           | 4'-0"                                                                                           | 4'-6"                                                                                            | 5'-0"                                                                                             | V-DIMEN.<br>SEE-DETAILS-FOR<br>MEASURE-POINTS                  |
|--------------------|------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
|                    |                                          | 33 3/4"                                                                                         | 39 3/4"                                                                                         | 45 1/4"                                                                                         | 51 1/4"                                                                                          | 57 1/4"                                                                                           |                                                                |
| 4' - 6"            | 23 3/4"                                  | <br>PT-3046    | <br>PPT-3646   | <br>PPT-4046   | <br>PPT-4646   | <br>PPT-5046   | 1' - 11 5/32"                                                  |
| 5' - 0"            | 19"<br>17 3/4"<br>15 1/2"                | <br>PPT-3050   | <br>PPT-3650   | <br>PPT-4050   | <br>PPT-4650   | <br>PPT-5050   | 1' - 6 13/32"<br>1' - 5 5/32"<br>1' - 2 15/16"                 |
| 5' - 6"            | 20 7/8"<br>19 5/8"<br>17 3/4"            | <br>PPT-3056   | <br>PPT-3656   | <br>PPT-4056   | <br>PPT-4656   | <br>PPT-5056   | 1' - 8 19/64"<br>1' - 7 3/64"<br>1' - 5 5/32"                  |
| 6' - 0"            | 23 7/8"<br>22 5/8"<br>17 3/4"            | <br>PPT-3060   | <br>PPT-3660   | <br>PPT-4060   | <br>PPT-4660   | <br>PPT-5060   | 1' - 11 19/64"<br>1' - 10 3/64"<br>1' - 5 5/32"                |
| 6' - 6"            | 26 7/8"<br>25 5/8"<br>17 3/4"            | <br>PPT-3066   | <br>PPT-3666   | <br>PPT-4066   | <br>PPT-4666   | <br>PPT-5066   | 2' - 2 19/64"<br>2' - 1 3/64"<br>1' - 5 5/32"                  |
| 7' - 0"            | 26 7/8"<br>25 5/8"<br>23 3/4"            | <br>PPT-3070  | <br>PPT-3670  | <br>PPT-4070  | <br>PPT-4670  | <br>PPT-5070  | 2' - 2 19/64"<br>2' - 1 3/64"<br>1' - 11 5/32"                 |
| 7' - 6"            | 20 7/8"<br>19 5/8"<br>21 5/8"<br>19 5/8" | <br>PPT-3076 | <br>PPT-3676 | <br>PPT-4076 | <br>PPT-4676 | <br>PPT-5076 | 1' - 8 19/64"<br>1' - 7 3/64"<br>1' - 9 3/64"<br>1' - 7 3/64"  |
| 8' - 0"            | 20 7/8"<br>22 5/8"<br>24 5/8"<br>19 5/8" | <br>PPT-3080 | <br>PPT-3680 | <br>PPT-4080 | <br>PPT-4680 | <br>PPT-5080 | 1' - 8 19/64"<br>1' - 10 3/64"<br>2' - 0 3/64"<br>1' - 7 3/64" |
| 8' - 6"            | 20 7/8"<br>25 5/8"<br>27 5/8"<br>19 5/8" | <br>PPT-3086 | <br>PPT-3686 | <br>PPT-4086 | <br>PPT-4686 | <br>PPT-5086 | 1' - 8 19/64"<br>2' - 1 3/64"<br>2' - 3 3/64"<br>1' - 7 3/64"  |
| 9' - 0"            | 26 7/8"<br>25 5/8"<br>27 5/8"<br>19 5/8" | <br>PPT-3090 | <br>PPT-3690 | <br>PPT-4090 | <br>PPT-4690 | <br>PPT-5090 | 2' - 2 19/64"<br>2' - 1 3/64"<br>2' - 3 3/64"<br>1' - 7 3/64"  |

\* Window Dimension equals Masonry  
Opening required for one unit











## SINGLE • PROJECTED • CASEMENTS

STANDARD • TYPES • AND • SIZES

ALL ELEVATIONS SHOWN  
ON THIS PAGE ARE —  
OUTSIDE ELEVATIONS —

PROJECTED • OUT • AT • SIDE

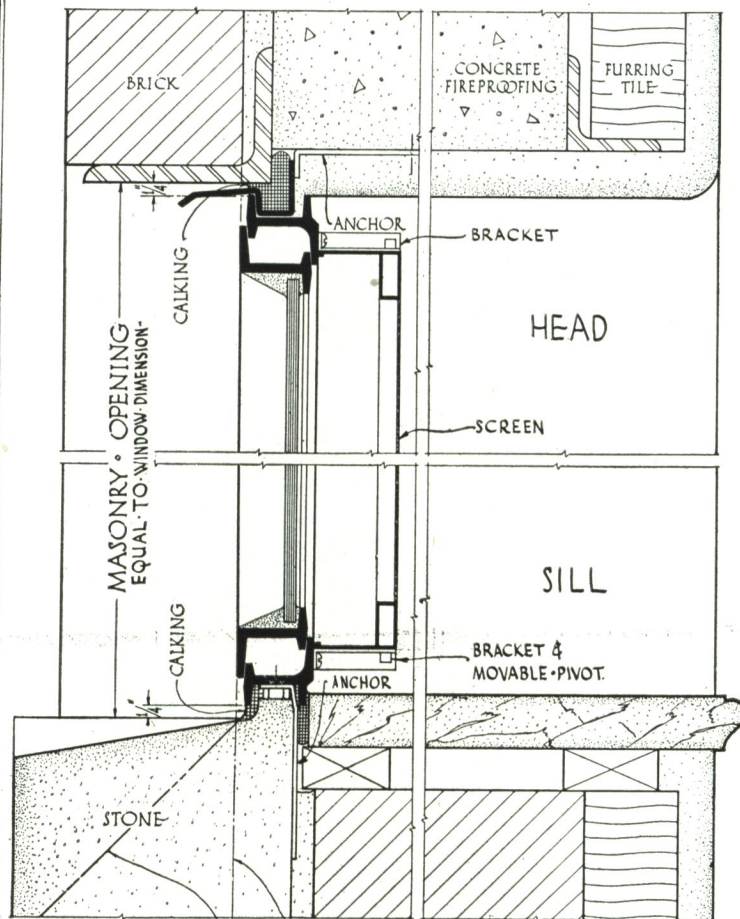
| WINDOW<br>DIMENSION | * → 1'-6" | 1'-9"                                                                                        |                                                                                              | 2'-0"                                                                                        |                                                                                              | 2'-3"                                                                                        |                                                                                              | 2'-6"                                                                                        |                                                                                               |                                                                                                |                                                                                                |
|---------------------|-----------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| GLASS<br>SIZE       | → 15 1/4" | 18 1/4"                                                                                      | Left Hand<br>Casement                                                                        | 21 1/4"                                                                                      | Right Hand<br>Casement                                                                       | 24 1/4"                                                                                      |                                                                                              |                                                                                              | 27 1/4"                                                                                       |                                                                                                |                                                                                                |
| 2'-0"               | 20"       |  PSL-1620   |  PSR-1620   |  PSL-1920   |  PSR-1920   |  PSL-2020   |  PSR-2020   |  PSL-2320   |  PSR-2320   |  PSL-2620   |  PSR-2620   |
| 2'-6"               | 26"       |  PSL-1626   |  PSR-1626   |  PSL-1926   |  PSR-1926   |  PSL-2026   |  PSR-2026   |  PSL-2326   |  PSR-2326   |  PSL-2626   |  PSR-2626   |
| 3'-0"               | 32"       |  PSL-1630   |  PSR-1630   |  PSL-1930   |  PSR-1930   |  PSL-2030   |  PSR-2030   |  PSL-2330   |  PSR-2330   |  PSL-2630   |  PSR-2630   |
| 3'-6"               | 38"       |  PSL-1636   |  PSR-1636   |  PSL-1936   |  PSR-1936   |  PSL-2036   |  PSR-2036   |  PSL-2336   |  PSR-2336   |  PSL-2636   |  PSR-2636   |
| 4'-0"               | 44"       |  PSL-1640  |  PSR-1640  |  PSL-1940  |  PSR-1940  |  PSL-2040  |  PSR-2040  |  PSL-2340  |  PSR-2340  |  PSL-2640  |  PSR-2640  |
| 4'-6"               | 50"       |  PSL-1646 |  PSR-1646 |  PSL-1946 |  PSR-1946 |  PSL-2046 |  PSR-2046 |  PSL-2346 |  PSR-2346 |  PSL-2646 |  PSR-2646 |
| 5'-0"               | 56"       |  PSL-1650 |  PSR-1650 |  PSL-1950 |  PSR-1950 |  PSL-2050 |  PSR-2050 |  PSL-2350 |  PSR-2350 |  PSL-2650 |  PSR-2650 |

PROJECTED • OUT • AT • BOTTOM

| WINDOW*<br>DIMENSION | GLASS<br>SIZE | 3'-2"                                                                                       | 3'-8"                                                                                       | 4'-2"                                                                                       | 4'-8"                                                                                       | 5'-2"                                                                                         |
|----------------------|---------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
|                      |               | 35 1/4"                                                                                     | 41 1/4"                                                                                     | 47 1/4"                                                                                     | 53 1/4"                                                                                     | 59 1/4"                                                                                       |
| 4'-6"                | 14"           |  PB-3216 |  PB-3816 |  PB-4216 |  PB-4816 |  PB-5216 |
| 4'-9"                | 17"           |  PB-3219 |  PB-3819 |  PB-4219 |  PB-4819 |  PB-5216 |
| 2'-0"                | 20"           |  PB-3220 |  PB-3820 |  PB-4220 |  PB-4820 |  PB-5216 |

\* Window Dimension equals the Masonry  
Opening required for one unit





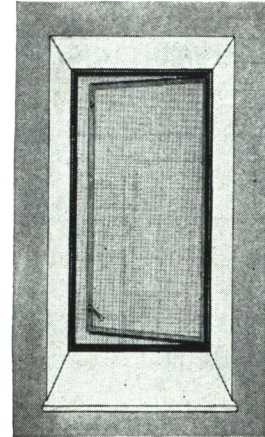
A SILL - SLOPED TO PREVENT COLLECTION OF DUST MAY BE USED FOR CASEMENTS OR PROJECTED WINDOWS.

BACK LINE OF REVEAL

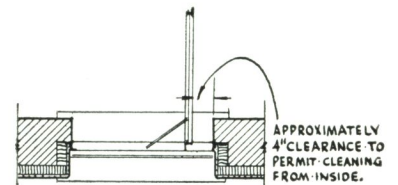
**NOTE**  
See page references at bottom of page for Full Size Sections and Mullion Details.

## SINGLE PROJECTED • CASEMENTS OUT • AT • SIDE

SCALE FOR DETAILS ~ 3" = 1'-0"

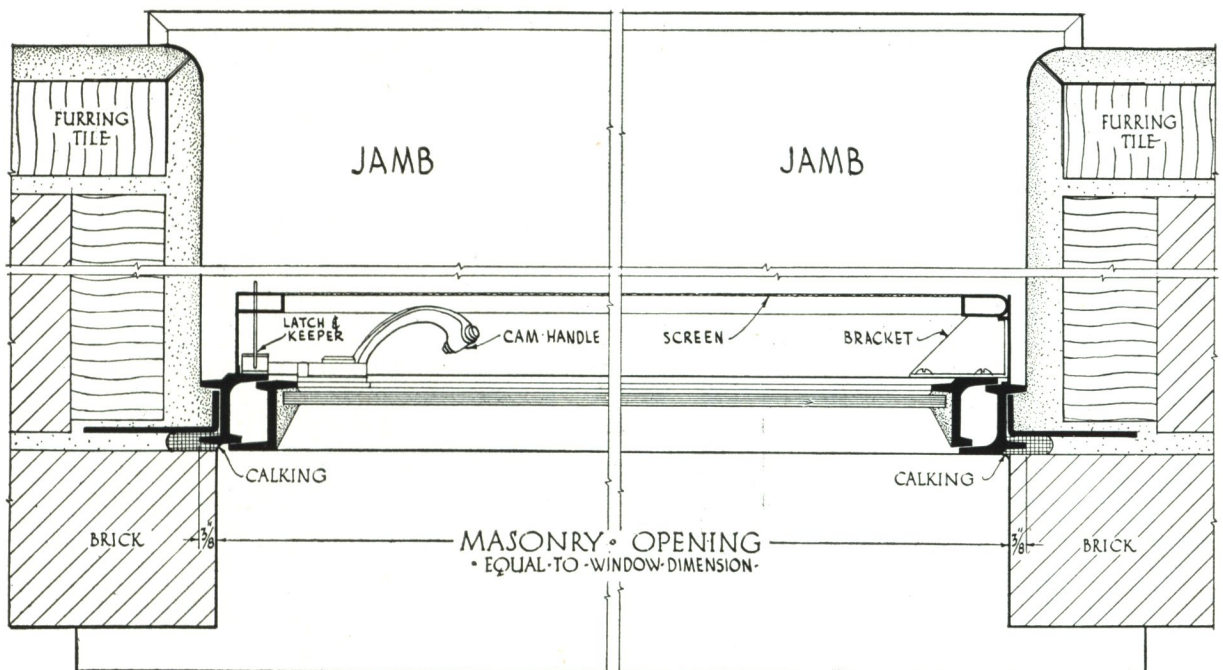


INSIDE • ELEVATION



• PLAN •

SCALE 1/4" = 1'-0"



Full Size Sections on pages 46 and 47

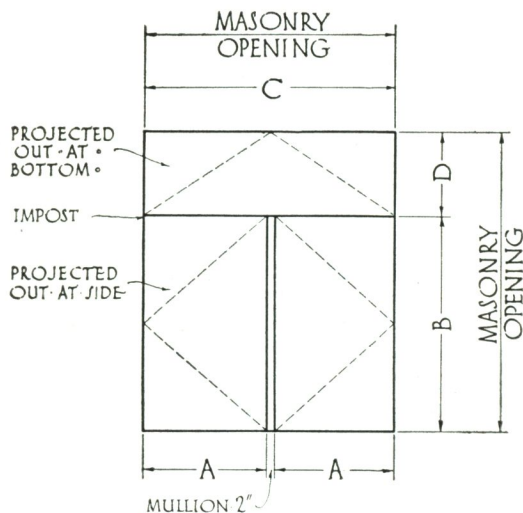
Mullion Details on pages 40 and 45

LUPTON PAGE 43

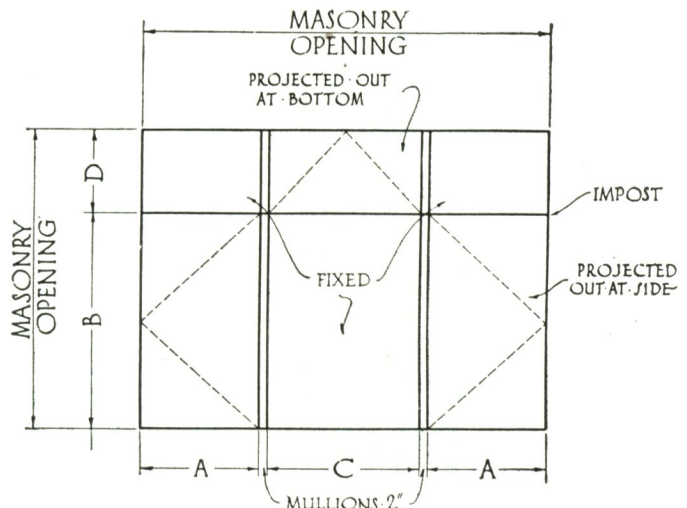


# WIDTHS • & • HEIGHTS • OF • MASONRY • OPENINGS • FOR • COMPOSITE • WINDOWS •

TABLES • GIVING • MASONRY • OPENING • DIMENSIONS • FOR  
TWO • TYPICAL • DESIGNS • OF • COMPOSITE • WINDOWS



TYPICAL ELEVATION • I



TYPICAL ELEVATION • II

HEIGHTS • OF • MASONRY • OPENINGS  
FOR • ELEVATIONS • I • & • II

| DIMEN.<br>• B • | DIMENSION • D |         |         |
|-----------------|---------------|---------|---------|
|                 | 1' - 6"       | 1' - 9" | 2' - 0" |
| 2' - 0"         | 3' - 6"       | 3' - 9" | 4' - 0" |
| 2' - 6"         | 4' - 0"       | 4' - 3" | 4' - 6" |
| 3' - 0"         | 4' - 6"       | 4' - 9" | 5' - 0" |
| 3' - 6"         | 5' - 0"       | 5' - 3" | 5' - 6" |
| 4' - 0"         | 5' - 6"       | 5' - 9" | 6' - 0" |
| 4' - 6"         | 6' - 0"       | 6' - 3" | 6' - 6" |
| 5' - 0"         | 6' - 6"       | 6' - 9" | 7' - 0" |

• NOTE •

See Lupton page 42 for units used in combinations shown on this page. ~

A = Window Dimension Width of Side Projected Unit.

B = Window Dimension Height of Side Projected Unit.

C = Window Dimension Width of Bottom Projected Unit.

D = Window Dimension Height of Bottom Projected Unit.

WIDTHS • OF •  
MASONRY • OPENINGS  
FOR • ELEVATION • I

| DIMEN.<br>• A • | DIMEN.<br>• C • | MASONRY<br>OPENING |
|-----------------|-----------------|--------------------|
| 1' - 6"         | 3' - 2"         | 3' - 2"            |
| 1' - 9"         | 3' - 8"         | 3' - 8"            |
| 2' - 0"         | 4' - 2"         | 4' - 2"            |
| 2' - 3"         | 4' - 8"         | 4' - 8"            |
| 2' - 6"         | 5' - 2"         | 5' - 2"            |

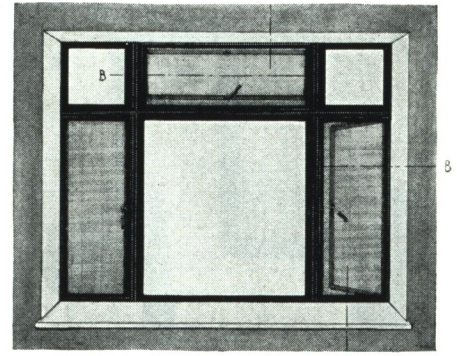
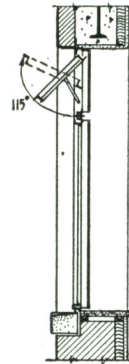
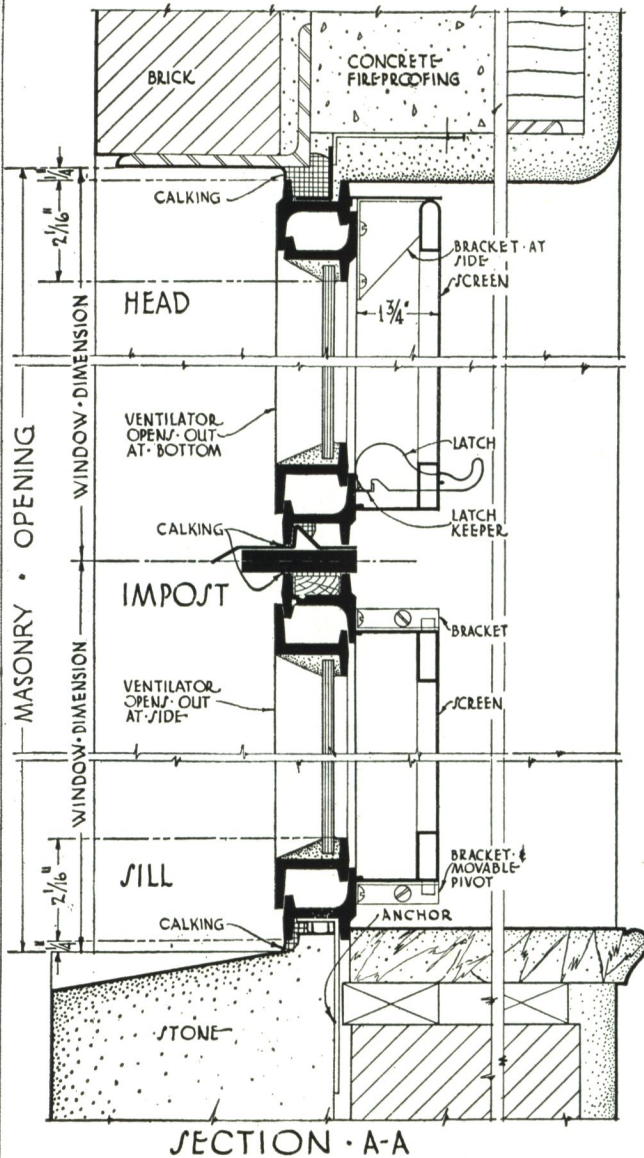
WIDTHS • OF •  
MASONRY • OPENINGS  
FOR • ELEVATION • II

| DIMEN.<br>• A • | DIMENSION • C • |         |         |          |          |
|-----------------|-----------------|---------|---------|----------|----------|
|                 | 3' - 2"         | 3' - 8" | 4' - 2" | 4' - 8"  | 5' - 2"  |
| 1' - 6"         | 6' - 6"         | 7' - 0" | 7' - 6" | 8' - 0"  | 8' - 6"  |
| 1' - 9"         | 7' - 0"         | 7' - 6" | 8' - 0" | 8' - 6"  | 9' - 0"  |
| 2' - 0"         | 7' - 6"         | 8' - 0" | 8' - 6" | 9' - 0"  | 9' - 6"  |
| 2' - 3"         | 8' - 0"         | 8' - 6" | 9' - 0" | 9' - 6"  | 10' - 0" |
| 2' - 6"         | 8' - 6"         | 9' - 0" | 9' - 6" | 10' - 0" | 10' - 6" |



# COMPOSITE • WINDOWS SINGLE • PROJECTED • CASEMENTS COMBINED • WITH • FIXED • UNITS

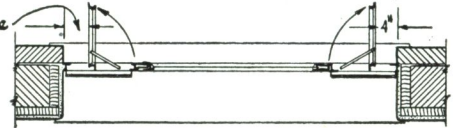
SCALE • FOR • DETAILS ~ 3" = 1'-0"



SECTION

TYPICAL • INSIDE • ELEVATION

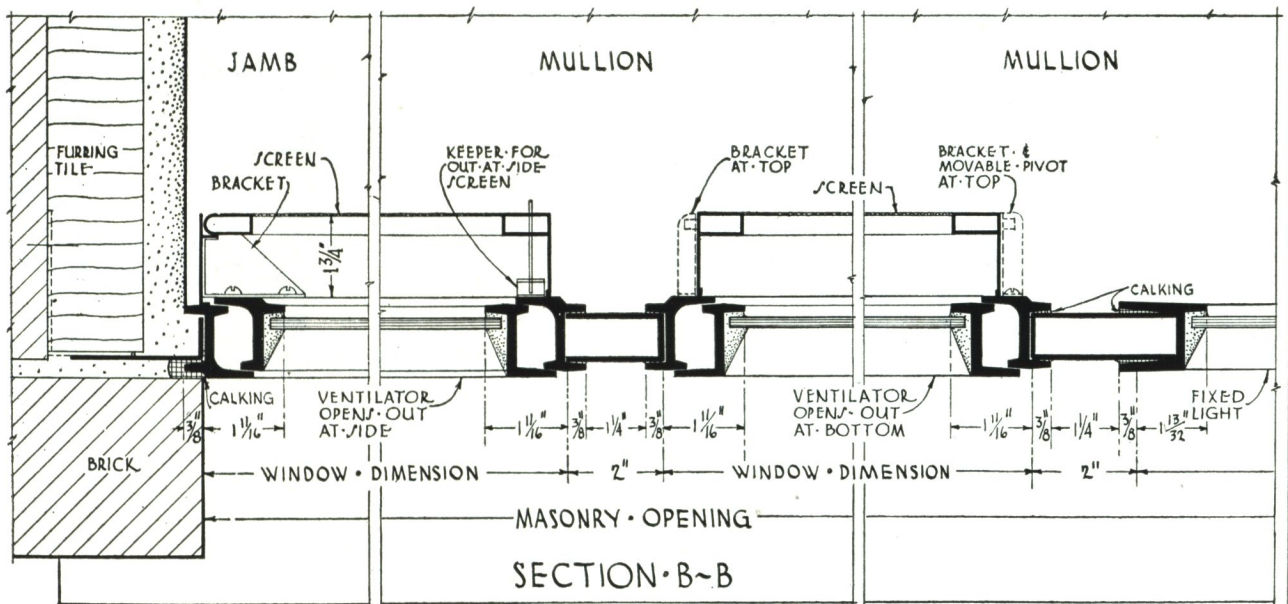
4" Clearance



scale 1/4" = 1'-0"

## • NOTES •

- 1-Several Single Projected Casements can be combined in one opening by using the impost and mullion details shown on this sheet. Fixed units in sizes to meet the requirements of the design are readily furnished altho not carried in stock.
- 2-Out at bottom ventilators open approximately 115° to permit cleaning from inside the building.
- 3-See page references at bottom of page, for Full-Size Sections and Sizes of Units.

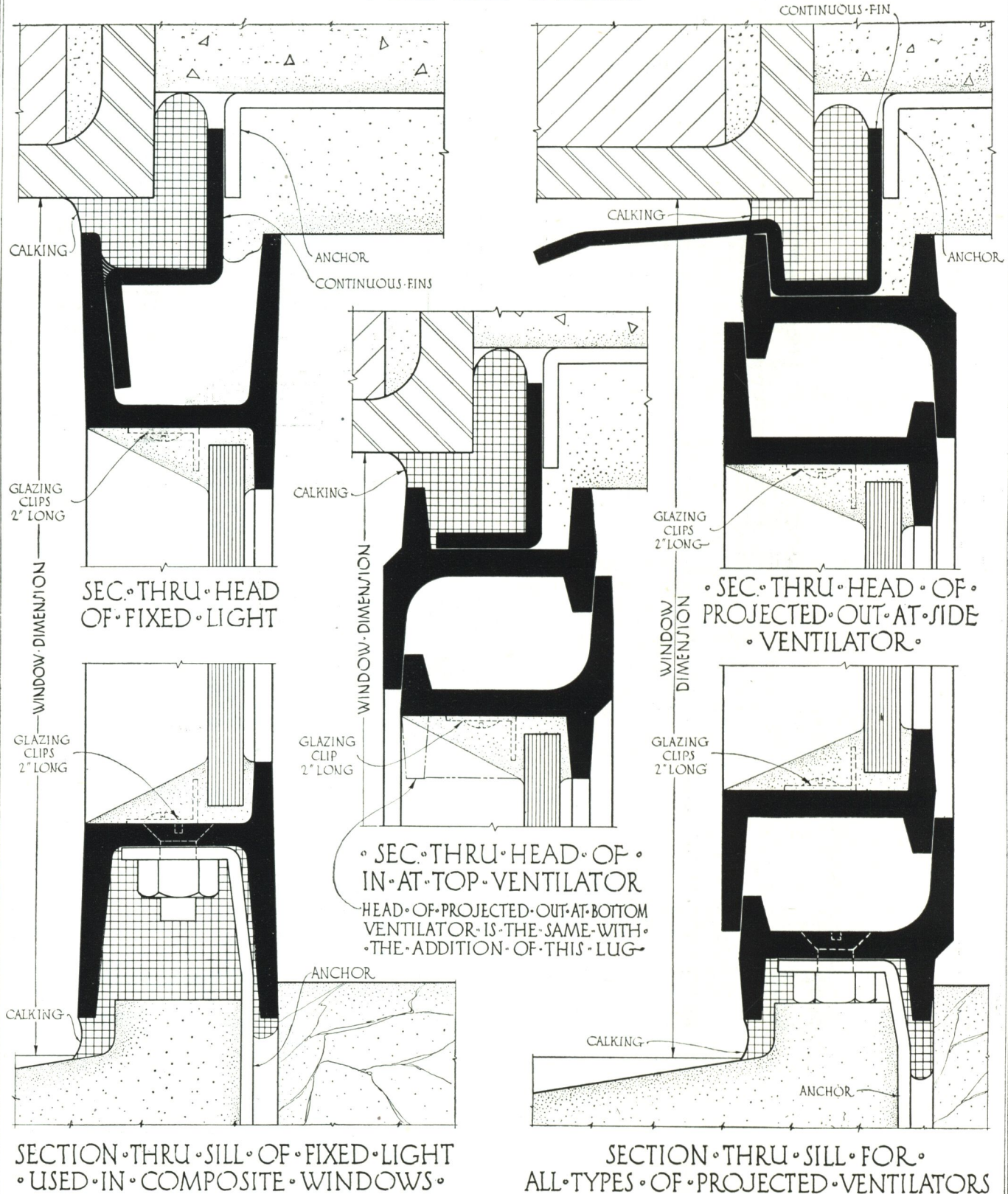


Full Size Sections on pages 46 and 47  
Sizes of units on page 42

LUPTON PAGE 45

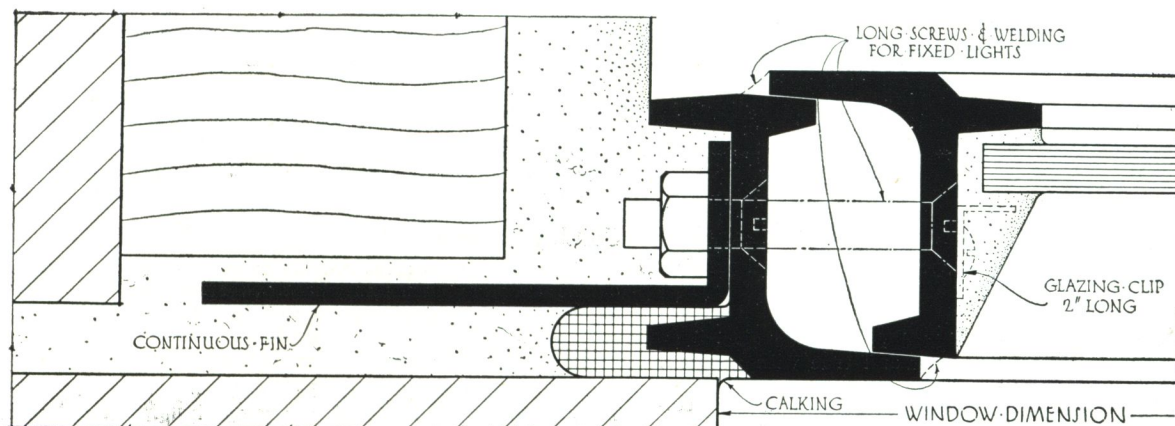


# PROJECTED • CASEMENTS • FULL • SIZE • DETAILS •

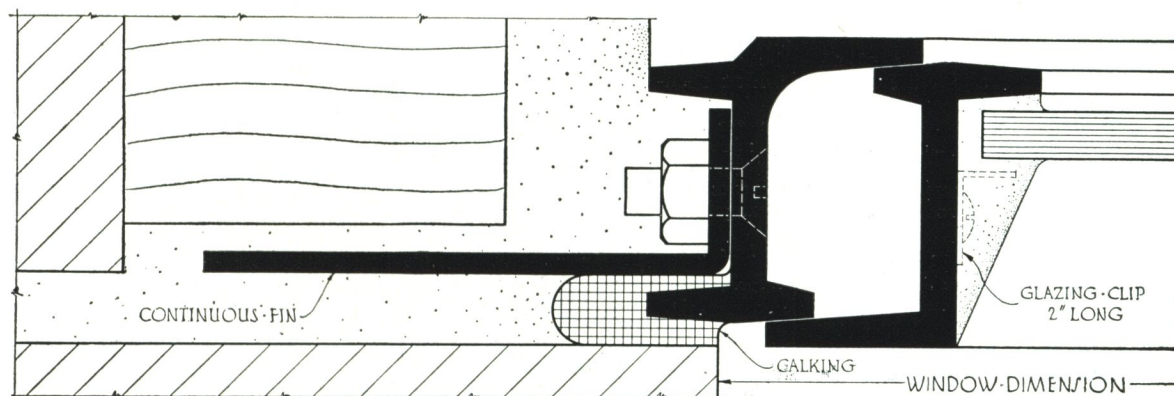




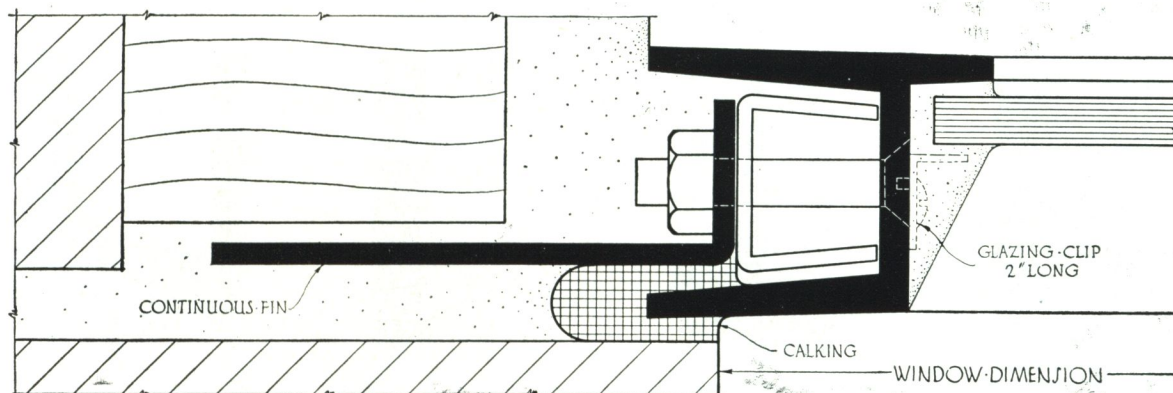
PROJECTED • CASEMENTS  
• FULL • SIZE • DETAILS •



SEC. THRU JAMB OF IN. AT TOP VENTILATOR  
PROJECTED OUT AT SIDE VENTILATOR  
• OR • FIXED • LIGHT •



SECTION THRU JAMB OF  
PROJECTED OUT AT SIDE VENTILATORS • OR  
PROJECTED OUT AT BOTTOM VENTILATOR



SECTION THRU JAMB OF FIXED LIGHT  
USED IN COMPOSITE WINDOWS



## LUPTON RESIDENCE CASEMENTS

For all types of residences, apartment houses and similar buildings, Lupton Residence Casements possess many superior features in design and construction.

All units having a stationary transom (for protection of draperies) are provided with holes for attaching brackets for shades and draperies.

Provision has also been made for screening. Sheraton Handles (available in a variety of finishes) and malleable iron friction hinges are furnished as standard equipment on all casements. Upon special request alternate hardware or non-friction hinges and sill hardware will be furnished at extra cost.

### SPECIFICATION FOR LUPTON RESIDENCE CASEMENTS

#### Work Included

1. Furnish where shown on drawings, Lupton Residence Casements as manufactured by DAVID LUPTON'S SONS CO., Philadelphia, Pa.

#### Materials

2. Ventilator and frame members, muntins, and mullion and impost bars shall be made of specially rolled steel sections.

#### Construction

3. All casements shall be designed for outside glazing.  
4. All casements shall be straight and true with members in alignment and surfaces in a plane.

5. Ventilator and frame members shall be mitered at corners and butt welded. The frame and ventilator shall form a two-point, flat, continuous, weathering contact.

6. Muntin Bars shall be continuous from top to bottom, and from side to side between frame members or ventilator members. They shall be attached to frame members or ventilator members by tenoned, riveted joints and shall be so interlocked at their intersections as not to decrease their ultimate strength. They shall be flush with frame members or ventilator members on the inside.

7. Mullions and bolts for attachment shall be provided wherever two or more units are placed side by side in an opening.

8. Imposts and bolts for attachment shall be provided wherever two or more units are placed one directly above the other in an opening.

9. Weather bars shall be furnished for ventilators that extend to the head and shall be rolled as an integral part of the frame member at the head.

*Note:* (a) Continuous anchors should be specified here if wanted. See List of Extras at end of specification.  
(b) Sill and jamb anchor clips of steel should be specified here if wanted.

#### Hardware

10. All hardware, except hinges, shall be shipped unattached; carefully packed to prevent damage. Top-hinged ventilators shall be equipped with close-up friction hinges and shall have solid bronze transom latches supplied for locking. Side-hinged ventilators shall be equipped with extended friction hinges and shall have handles supplied for locking.

*Note:* If screens are to be furnished as noted on page 51 of this catalogue, the fact should be mentioned in the specification and the option number given so that the proper drilling can be furnished. If non-friction hinges or any departure from the standard hardware as described in paragraph 10 is desired, this fact should be stated. See hardware and list of extras on this page.

#### Calking Cement (See page 1)

11. The window manufacturer shall furnish non-staining elastic calking cement in quantities sufficient for application as shown on window manufacturer's standard details.

#### Erection (See page 1)

12. All casements shall be erected by (state by whom). They shall be set plumb and true, properly aligned and securely anchored before glazing. Mullions and impost (and continuous anchors if specified) shall be bolted securely to frames. Calking cement shall be neatly applied at points indicated on window manufacturer's standard details. Attach hardware.

*Note:* Unless definitely stated otherwise in order or in specification, hardware will be attached by erector when casement is erected.

#### Painting

13. All casements shall receive one shop coat of casement manufacturer's standard dark gray paint, oven dried.

*Note:* See page 1.

#### Glass and Glazing

*Note:* (See also page 1.) Specify glass and glazing under proper heading elsewhere in specifications.

(a) Do not specify single thickness glass.

(b) Specify high grade steel window putty (ordinary wood sash putty must not be used).

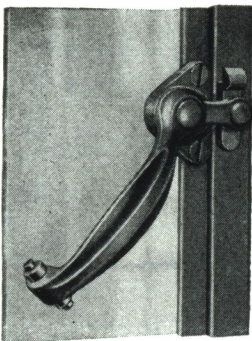
(c) Specify that Lupton Residence Casement Windows shall be glazed from the outside. The glass set in a bed of putty and held by Lupton Standard Wire Glazing Clips.

#### LIST OF EXTRAS

The following are alternates and extras furnished when specified at added cost.

1. Continuous anchors of 16 gauge galvanized steel with corner fillers of 18 gauge galvanized steel for use at head and jamb.
2. Under screen operator and non-friction hinges. (This is not the same as screen option No. 3 on page 51.)
3. Solid bronze handles of the Alden Park type.
4. Handles and transom latches in alternate finishes (see below).
5. Drilling for screen option other than Option No. 1.

### HARDWARE

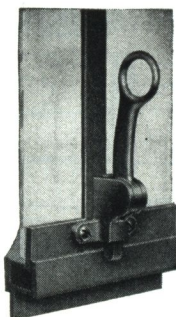


**Standard Sheraton Handle**

No. 352 shown (opposite hand, No. 351)

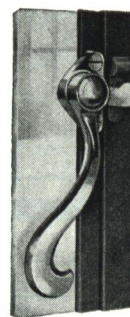
This handle with gray painted finish is furnished unless an alternate is specified. Furnished when specified in one of the following finishes, at extra cost.

|                 |                       |
|-----------------|-----------------------|
| Old Coin Bronze | Polished Brass        |
| Polished Bronze | Nickel Plate          |
| Statuary Bronze | Imitation Bower Barff |



**Transom Latch No. 354**

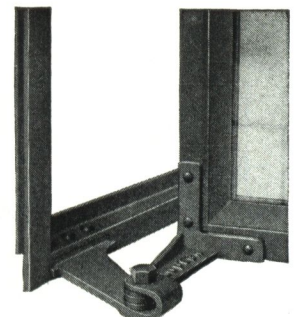
Used on all top-hinged transoms. Designed to permit application of box screens. Bronze with painted finish is standard. Polished bronze finish is furnished when specified at extra cost.



**Alden Park Handle**

No. 271 shown (opposite hand, No. 270)

This solid bronze handle is an alternate furnished only when specified.



**Malleable Iron Friction Hinge**

Extended Friction Hinges hold casement open in any desired position and permit cleaning of glass from inside the building.



# LUPTON · CASEMENTS

## RESIDENCE · TYPE . . . . .



### Optional Ventilating Unit

The combination of ventilators shown here is suggested for use in all rooms where a balanced inflow and outflow of air is desirable.

The outswinging leaves of Lupton Casements invite the cooling breezes that take the hardships out of summer heat. With this new ventilator added to the casement, it is possible to maintain a constant supply of fresh air, without draft, at all seasons, providing in homes the same high standard of ventilation enjoyed in office buildings equipped with Lupton Windows.

Provision has been made for attaching a fixed screen on the outside of the window. It is not necessary to remove the screen or open it during the summer season, but it is easily removed for winter storage.

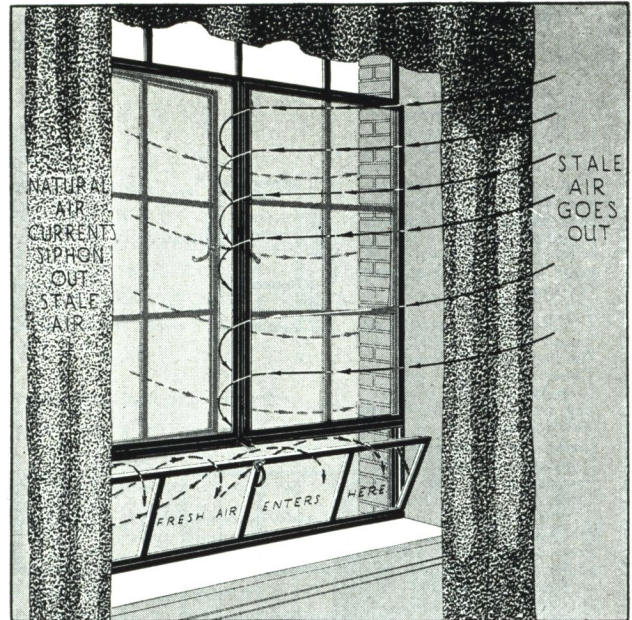
When a ventilating unit is used below a side hinged casement, underscreen levers or operators such as those described and shown on pages 51, 52 and 53 cannot be used to operate the casement.

**Details and Sizes**—Details and standard sizes are shown on the following page.

### Provision for Shades and Draperies

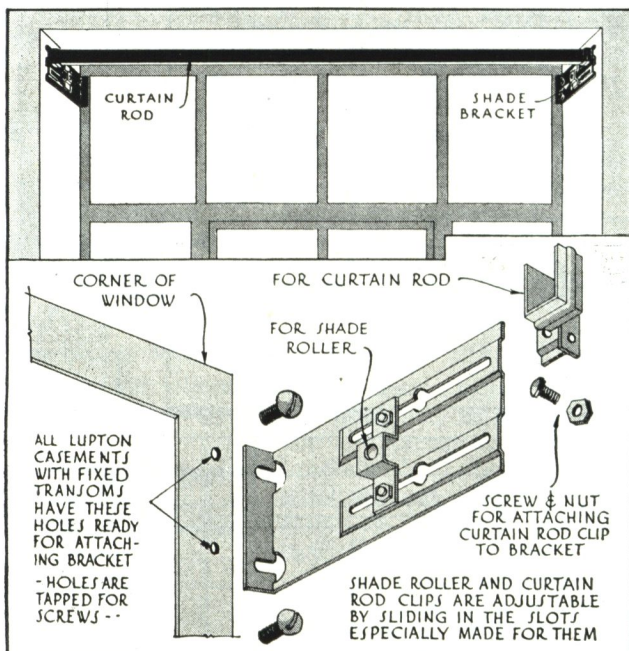
Lupton Casements are complete to the last detail of attaching shades and draperies. The type of Casement that can be both screened and shaded most satisfactorily is the one with a row of fixed lights over the ventilators. With this type of window brackets for shades and draperies are mounted on the casement in holes provided for this purpose. Wood trim is not disfigured. If desired, wood trim may be omitted and plaster returned directly to the casement frame.

**Standard Attachments**—Illustration below at left shows standard combination consisting of two brackets and a single rod cut to exact length. This

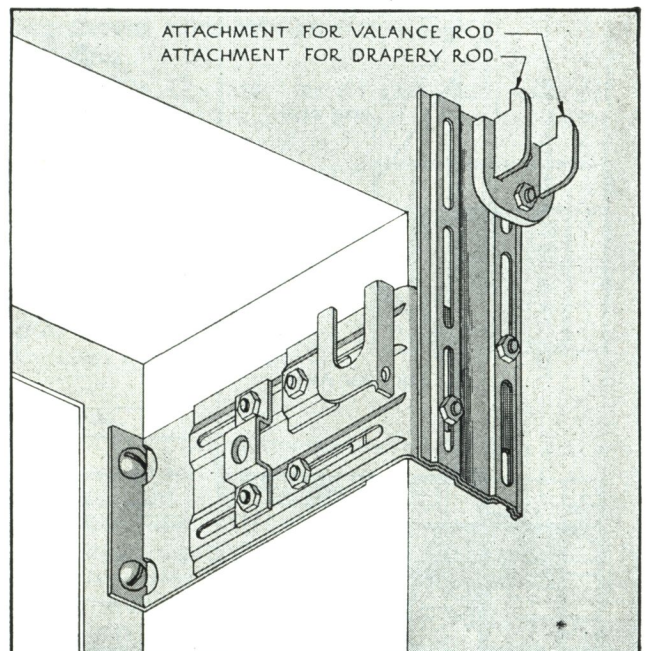


provides for attachment of a roller shade and a single pair of curtains. It can be purchased at the time windows are purchased, through the Lupton representative.

**Extra Attachments**—Extra attachments are easily applied to original bracket for any changes that may be wanted. One of the many possible combinations is shown at right. It provides for roller shade, flat curtains, overdrapes and valance. Where valance is omitted and a decorative pole is to be used, a suitable ornamental end bracket of wood or metal can be furnished. Consult a Lupton representative for full details.



Standard Attachments



One of the Many Possible Combinations



# LUPTON · CASEMENTS

## WITH · PROJECTED · IN-AT-TOP · VENTILATORS



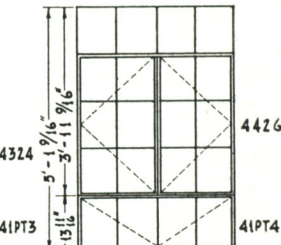
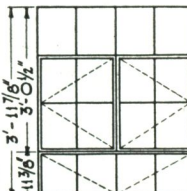
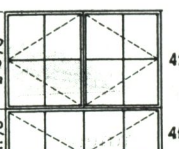
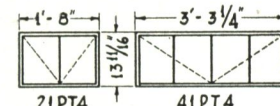
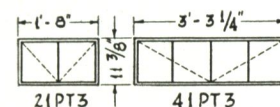
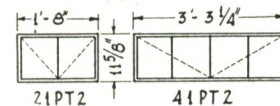
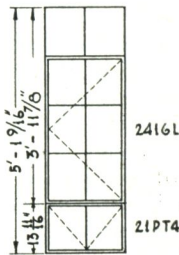
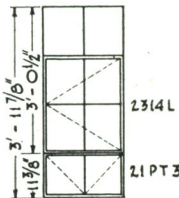
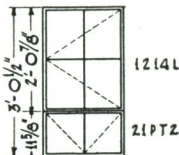
### NOTES

**1-SIZES** - These ventilators are designed to fit under standard two and four light wide casement units and are attached to the window before shipment. In-at-top ventilators when required under six light wide units are special and must be attached at our factory.

**2-SCREENS** - Box screens similar to those used for the Lupton No. 1 Screen Option (see page 51) have been designed for attaching on the outside of the ventilator.

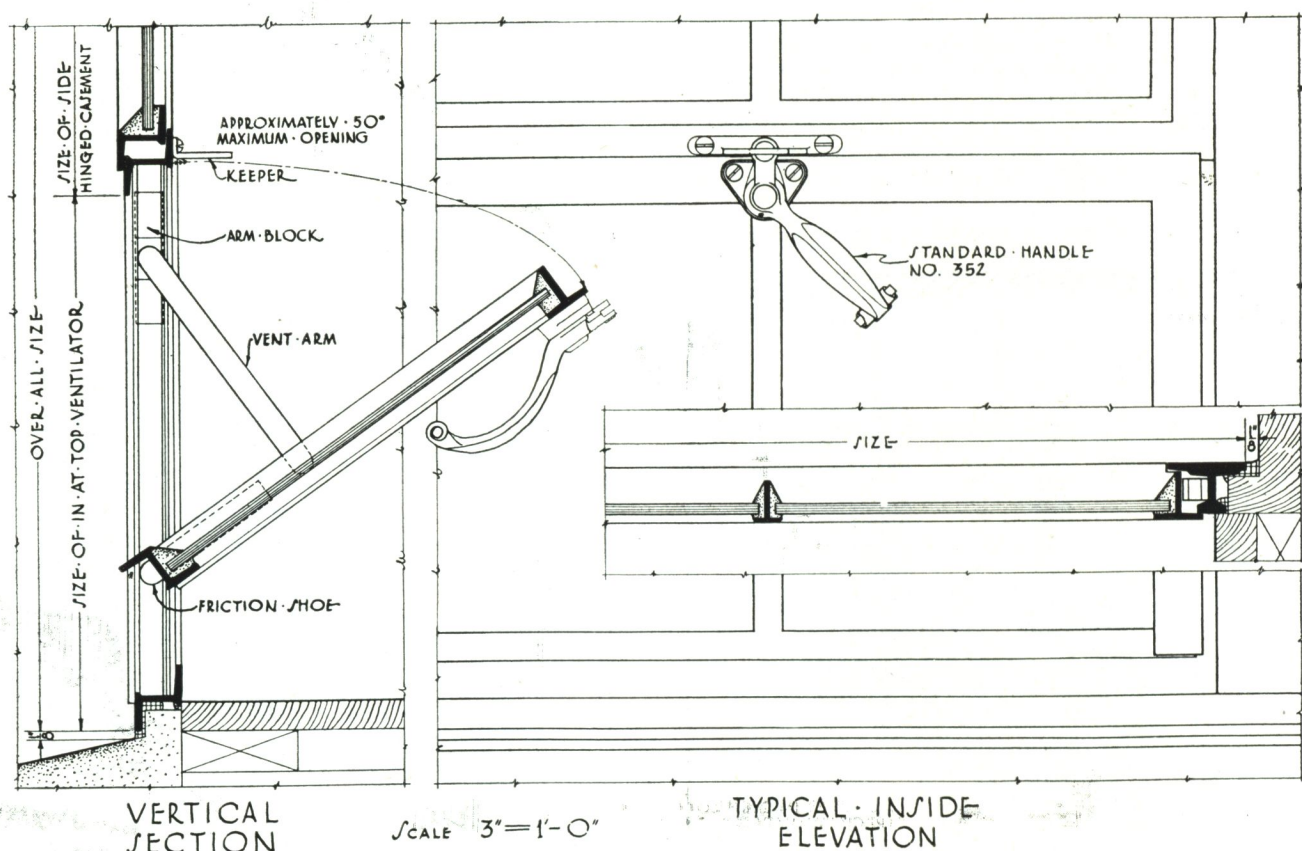
Under screen operators cannot be used above Project-In-at-Top-Ventilators.

**3-MULLIONS** - When Project-In-at-Top ventilators are required in openings with steel mullions the entire window should be assembled in our factory to insure perfect operation.



IN-AT-TOP-VENTS · SHOWN · IN · COMBINATION  
WITH · TYPICAL · STANDARD · UNITS (See · note · 1)  
OUTSIDE · ELEVATIONS.

STANDARD · IN-AT-TOP  
VENT · UNITS (See · note · 1)  
OUTSIDE · ELEVATIONS —



See description on page 49

LUPTON PAGE 50



# LUPTON · CASEMENTS

## TYPES · OF · SCREENS · FOR ·

## RESIDENCE · CASEMENTS ·



### Lupton Box Screen (Option No. 1)



This is the box screen that Lupton planned for use with their Residence Casements. All Residence Casements have holes in the frame for attaching this type of screen. Through its use all the beautiful and practical features of Lupton Casements are retained, including the beautiful new Sheraton Handle and practical friction hinge.

Made in sizes to protect openings 1 and 2 lights wide and 2, 3 and 4 lights high, they may be used separately or in pairs. Two neat brackets which attach to the window frame allow free movement of screen on spring pivots. Screens for 2-light wide casements are side pivoted, single-light wide casements and top-hung transoms are screened by means of a top-hung box screen similar in construction to the side-pivoted screens. A small but positive-acting gravity catch holds the screen tightly closed. The spring pivots allow the screen to be instantly removed.

Screen frame is made of formed steel, or, at a proportionately higher price, aluminum. For steel screens the frame is of one-piece tubular section rolled from 23-gauge steel, galvanized, painted gray, and wired with 16-mesh bronze wire cloth. The wire may be replaced if accidentally damaged.

Box screens applied to casements are shown on pages 52, 57, 58 and 60 to 62.

Clearances required at head, jambs and sill are shown on next page.

### Aluminum Screens

The aluminum box screens are of natural finish extruded aluminum alloy with corners solidly welded and finished smooth. Wire is 16-mesh rustless copper-bronze wire and may be replaced if accidentally damaged.

### Lupton Storm Windows

In localities where winters are severe, Lupton Storm



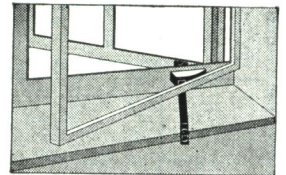
Windows may be substituted for box screens, as the same brackets hold both storm windows and screens. The frame of the storm window is of formed steel with special provision for glass insertion. These windows are practical and low in cost.

### Alternates

To meet special requirements Lupton Casements may be screened by any one of the methods described below. The additional drilling required for attaching these screens will be done at the warehouse of our dealer or distributor (at slight added cost), but your choice must be stated at time of purchase.

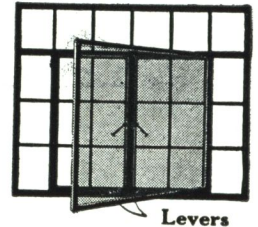
### Under-screen Levers (Option No. 2-A)

Same as Option No. 1, except that screen is so placed on casement frame to allow for a Lupton lever-type under-screen operator, here illustrated. Casement is opened and closed with the screen in place. Sill detail shown on next page.



### Box Screen, 4 Lights Wide (Option No. 2-B)

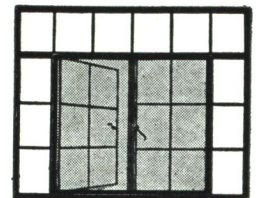
Same as Option No. 2-A, except screens are made four lights wide. One four-light wide screen may be substituted for 2 two-light wide screens as in Option No. 2-A, at any time. The same brackets act for hinging and fastening.



Levers

### Close-up Screen with Win-Dor Operator (Option No. 3)

A Win-Dor Operator (screw-gear type with sill cover) operated by crank under a screen, which requires the use of thin, flat hardware, instead of Lupton Sheraton Handles. The friction feature must also be eliminated from the Lupton hinge. Used in localities where frequent storms require a similarly frequent opening and closing of windows. Details giving clearances shown on page 53.



Cranks

### Roll Screens

A Roll Screen which operates screen wire in much the same way as a roller shade. Made in standard sizes to fit Lupton Casements. No field measurements or special fitting required, when used (as shown on page 59) with casements having fixed light of glass above ventilators. See page 54.





# LUPTON · CASEMENTS

## DETAILS · OF · BOX · SCREENS..

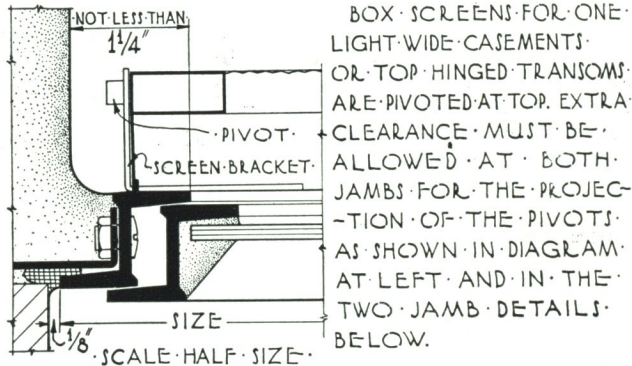
### SHOWING · CLEARANCES.....



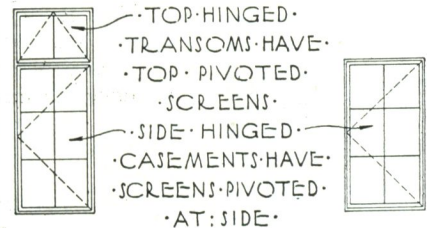
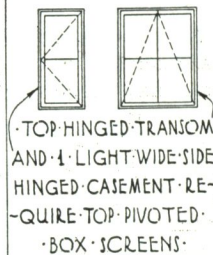
SCALE FOR DETAILS: 3"=1'-0"

· BOX · SCREENS · FOR · ONE · LIGHT · WIDE · CASEMENTS · AND · ALL · TOP · HINGED · TRANSOMS ·

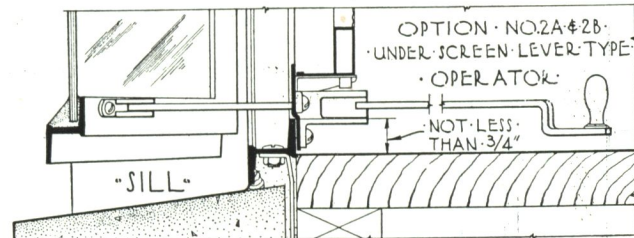
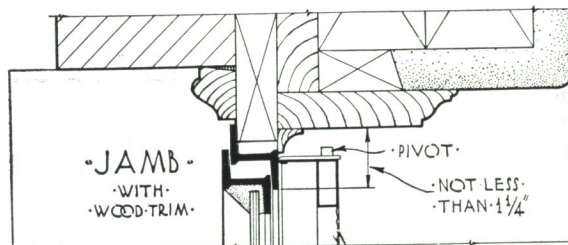
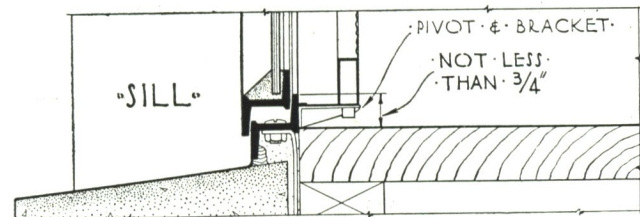
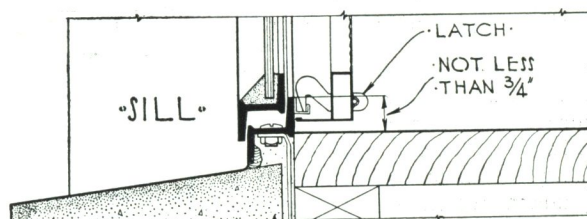
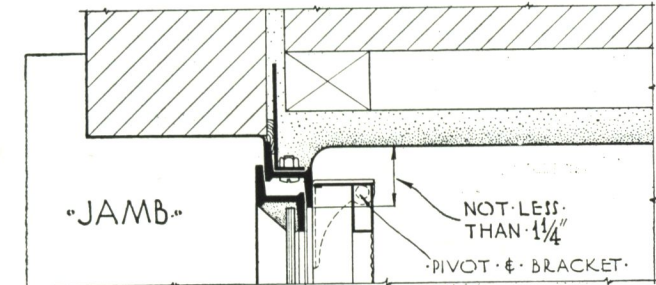
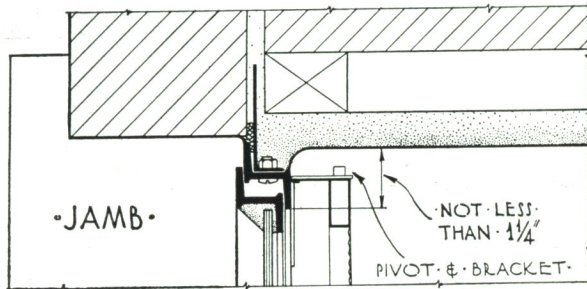
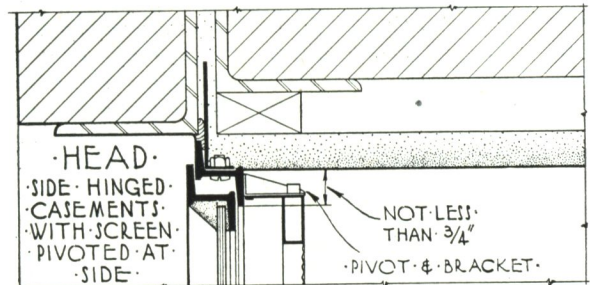
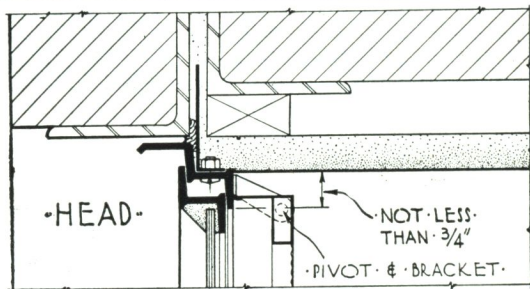
· ELEVATIONS · SHOWING · USE · OF · TOP · PIVOTED · AND · SIDE · PIVOTED · BOX · SCREENS ·



BOX · SCREENS · FOR · ONE · LIGHT · WIDE · CASEMENTS · OR · TOP · HINGED · TRANSOMS · ARE · PIVOTED · AT · TOP · EXTRA · CLEARANCE · MUST · BE · ALLOWED · AT · BOTH · JAMBS · FOR · THE · PROJECTION · OF · THE · PIVOTS · AS · SHOWN · IN · DIAGRAM · AT · LEFT · AND · IN · THE · TWO · JAMB · DETAILS · BELOW ·



· BOX · SCREENS · FOR · 2 · OR · 4 · LIGHT · WIDE · SIDE · HINGED · CASEMENTS ·



See description on page 51

LUPTON PAGE 52



# LUPTON · CASEMENTS

## DETAILS · OF · WINDOR · SCREENS

### SHOWING · CLEARANCES · . . . . .



SCALE FOR DETAILS · 3" = 1'-0"

WINDOR · SCREEN · COMBINATION  
OPTION · NO. 3 · . . . . .

WINDOR · COMBINATION · SCREEN · AND  
OPERATOR · CAN · BE · APPLIED · TO · ANY  
LUPTON · SIDE · HINGED · CASEMENT. ✓

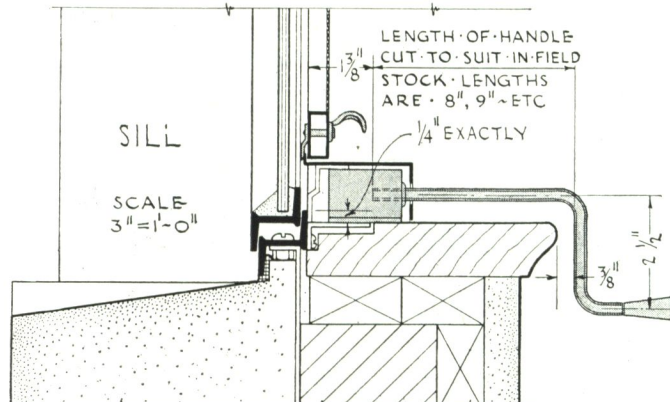
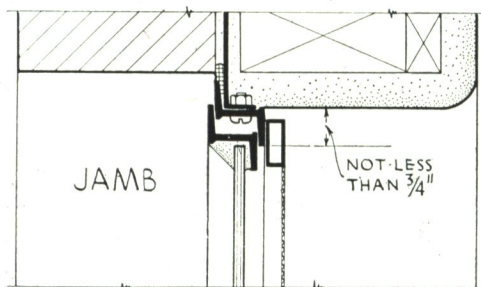
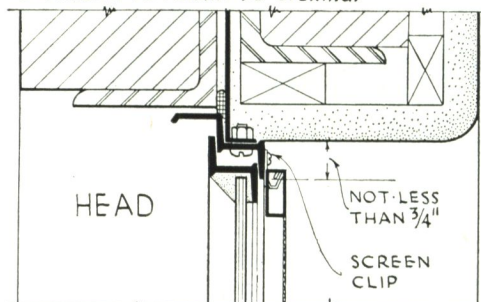
LUPTON STANDARD HANDLE  
MUST BE REPLACED BY THE ONE  
SHOWN AT THE RIGHT. →

HANDLE IS MALLEABLE IRON  
PAINTED BLACK ~ OR SOLID  
BRONZE POLISHED AS SPECIFIED.

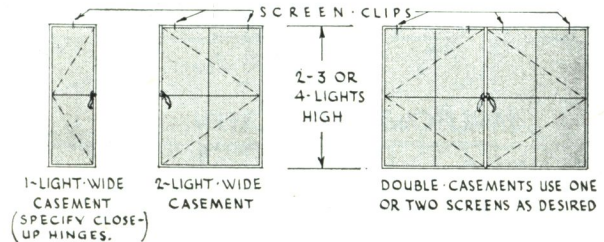
CLOSE UP HINGES SHOULD BE  
SPECIFIED ON ONE LIGHT WIDE  
CASEMENTS TO PERMIT 90° OPENING.



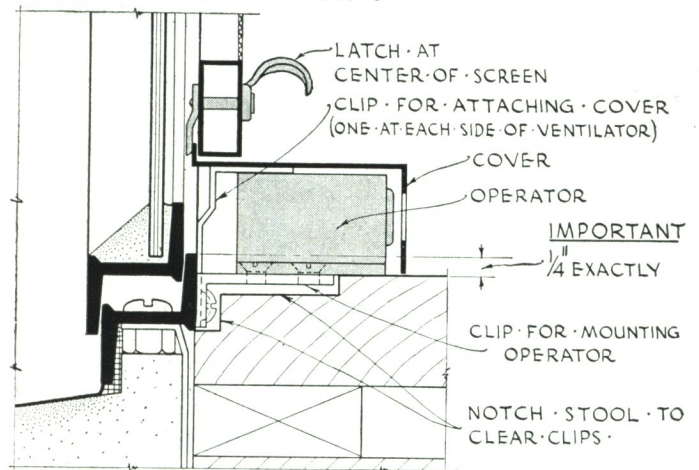
LOCKING  
HANDLE  
Scale 3" = 1'-0"



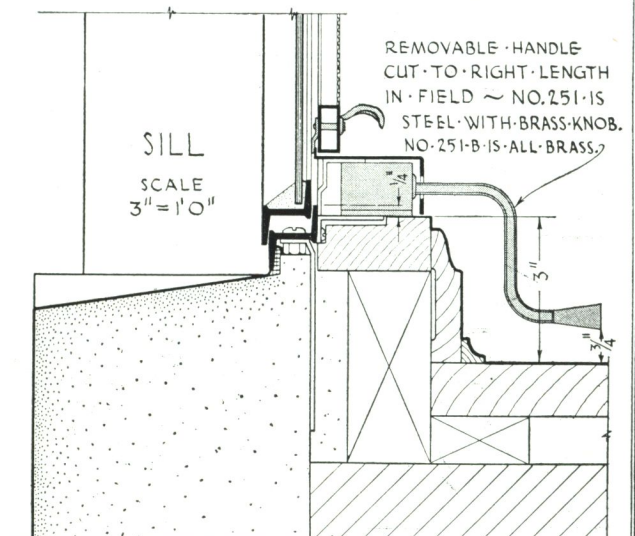
INSIDE · ELEVATIONS  
OF · TYPICAL · UNITS



HALF · SIZE · SILL · DETAIL · SHOWING · NOTCHING  
OF · STOOL · FOR · CLIPS.



WIDE · STOOLS · MAY · BE · DESIGNED · AS · SHOWN  
BELOW · TO · AVOID · USING · LONG · HANDLES.



See description on page 51

LUPTON PAGE 53



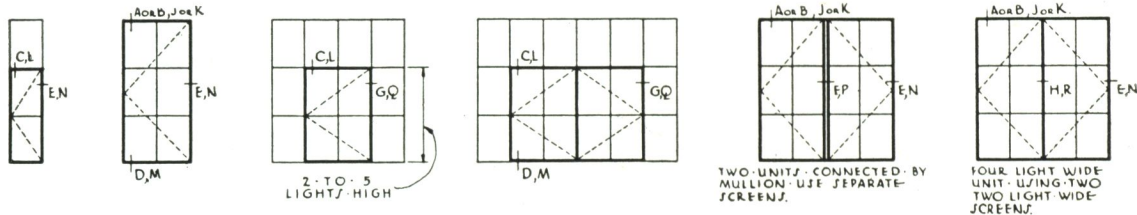
# LUPTON · CASEMENTS

## DETAILS · OF · ROLLSCREENS....

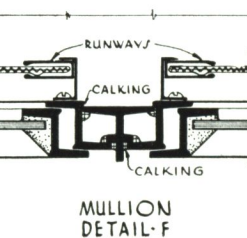
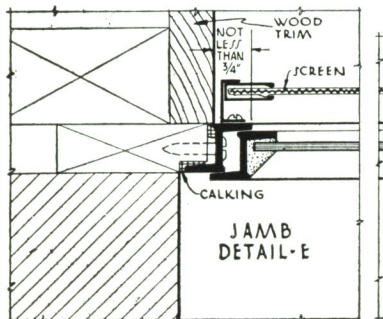
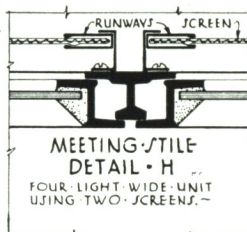
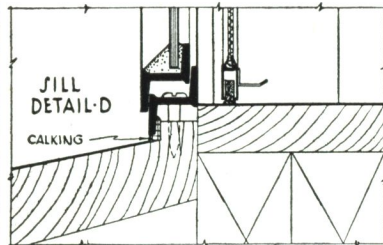
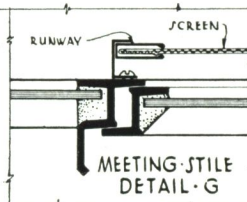
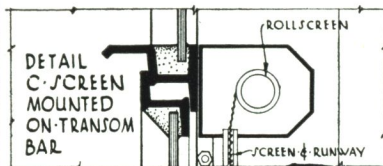
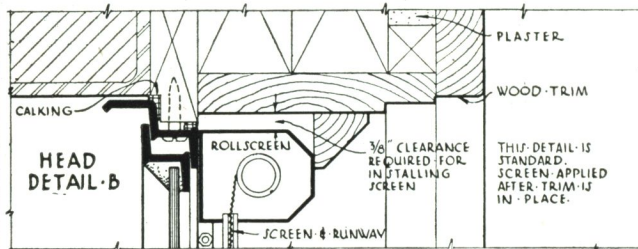
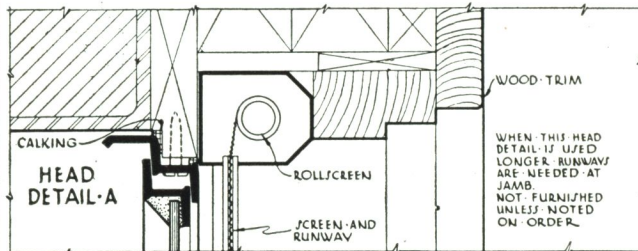
### SHOWING · CLEARANCES.....



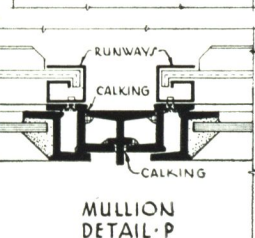
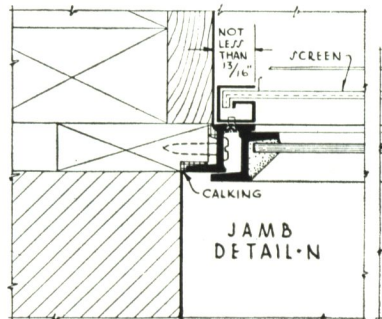
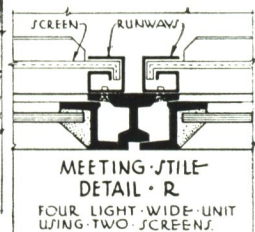
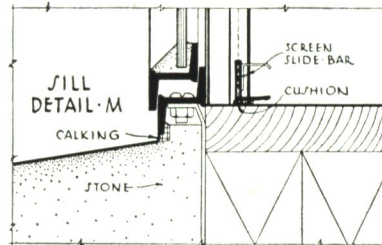
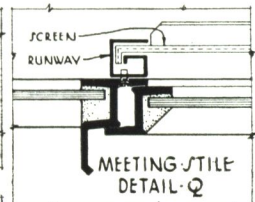
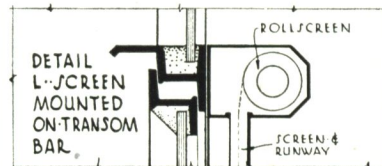
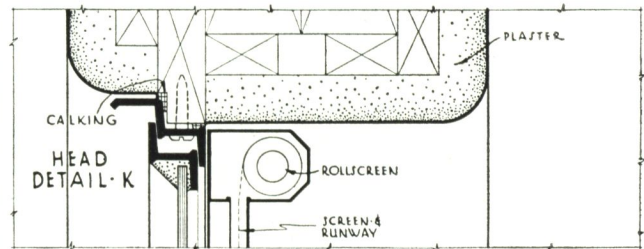
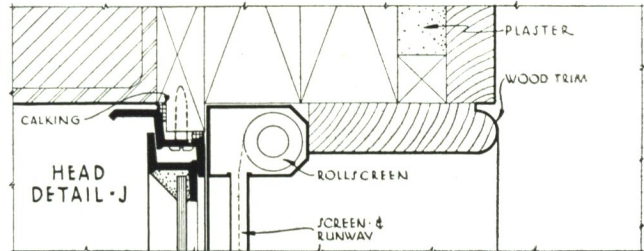
SCALE FOR DETAILS · 3" = 1'-0"



## JAMESTOWN · ROLLSCREEN



## METAL · CRAFT · ROLLSCREEN



See Description on Page 51

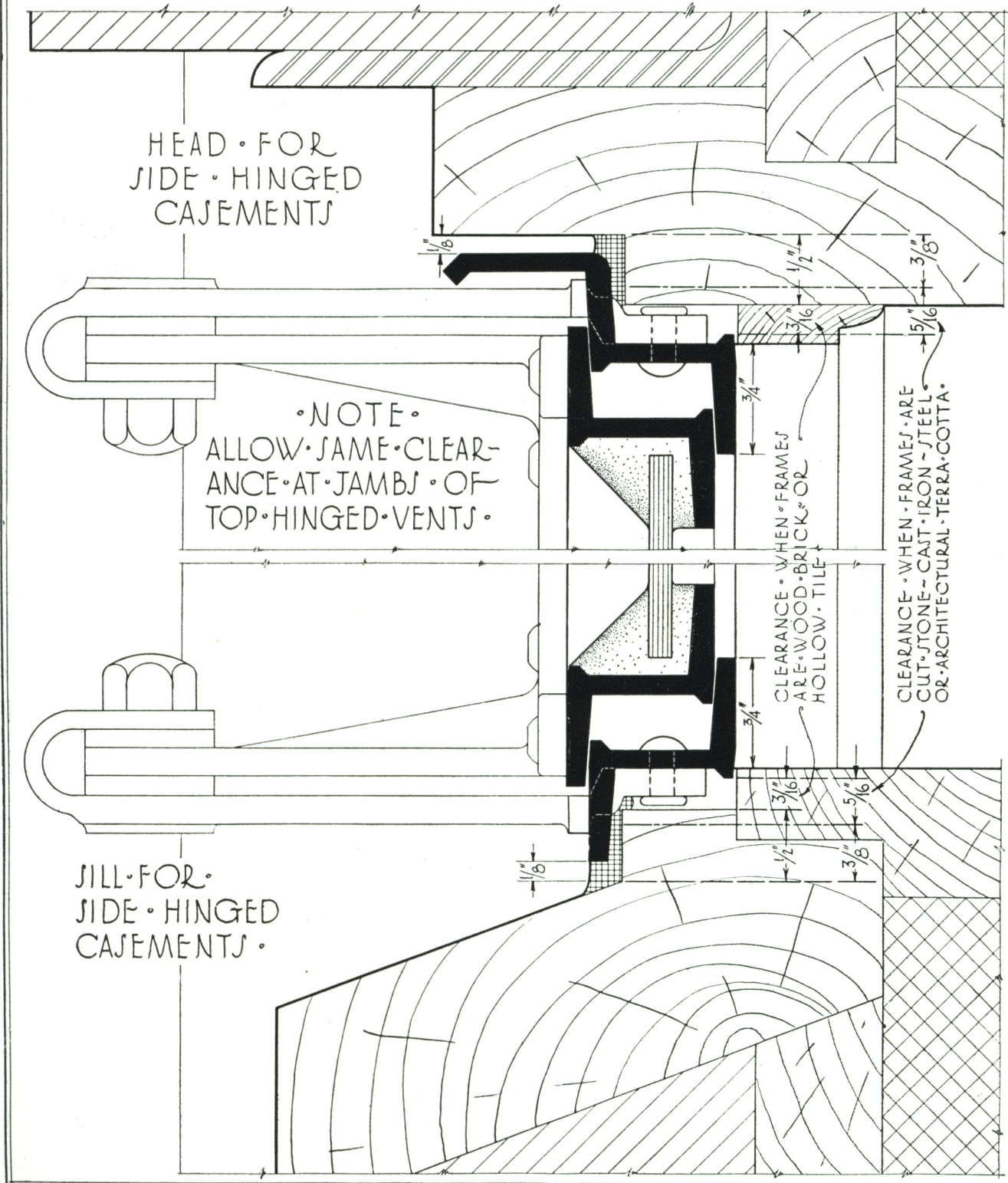
LUPTON PAGE 54



LUPTON · CASEMENTS  
DETAIL · OF · RABBET · SHOWING  
CORRECT · DEPTH · TO · CLEAR · HINGE



SCALE FULL SIZE



See text on page 48

LUPTON PAGE 55



# LUPTON · CASEMENTS

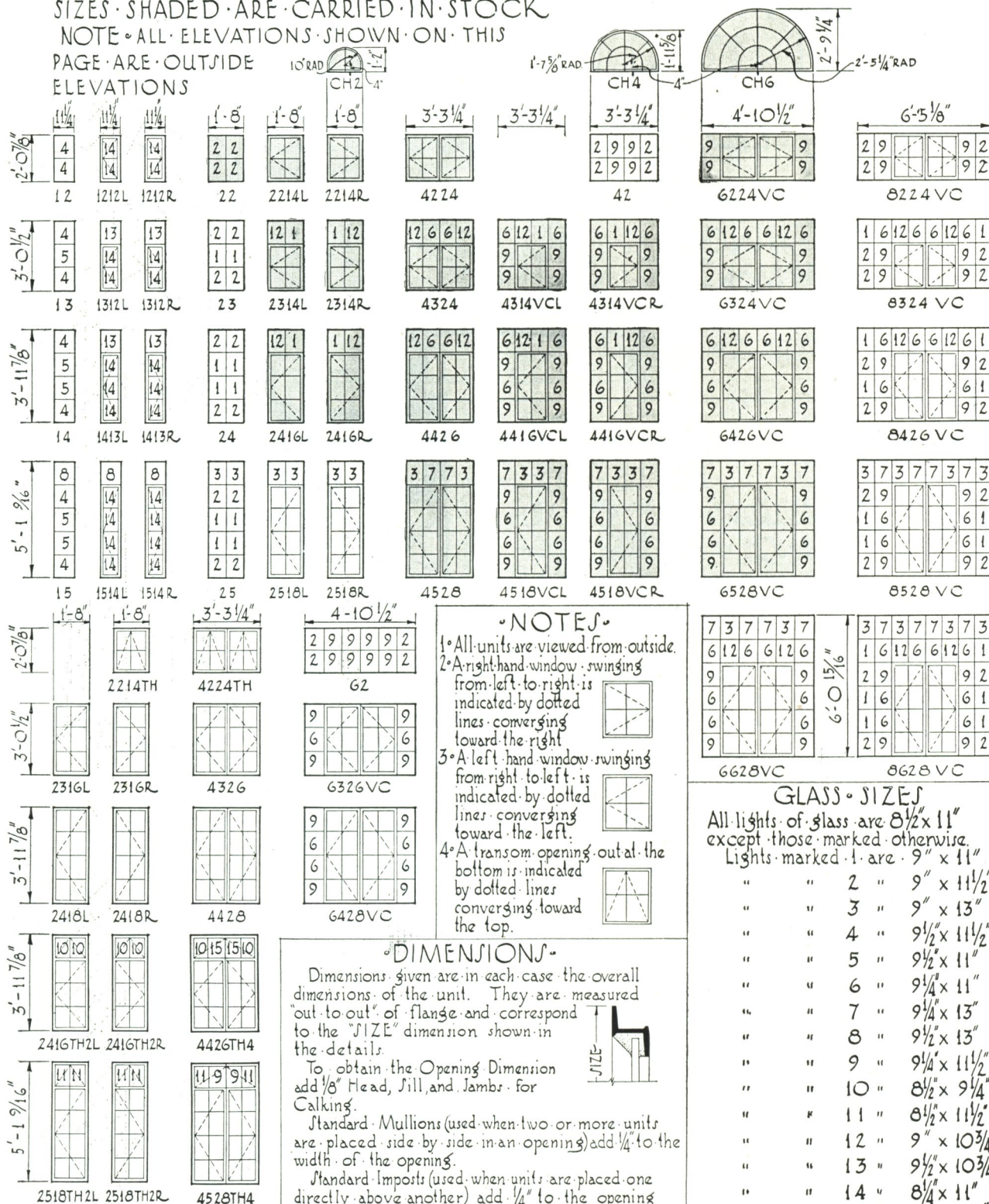
## STANDARD · TYPES · AND · SIZES



SIZES · SHADED · ARE · CARRIED · IN · STOCK

NOTE · ALL · ELEVATIONS · SHOWN · ON · THIS

PAGE · ARE · OUTSIDE  
ELEVATIONS



See text on page 48



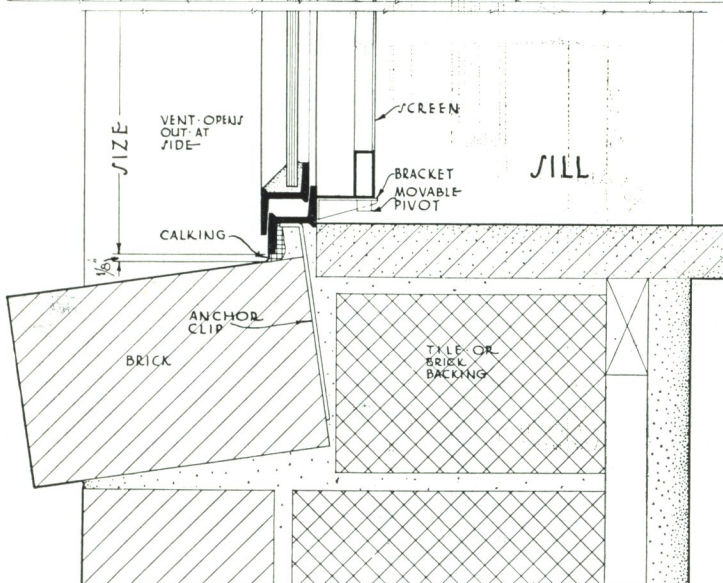
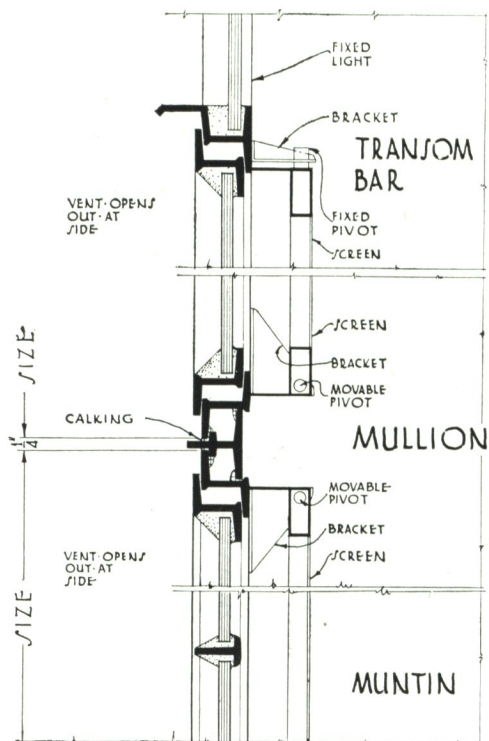
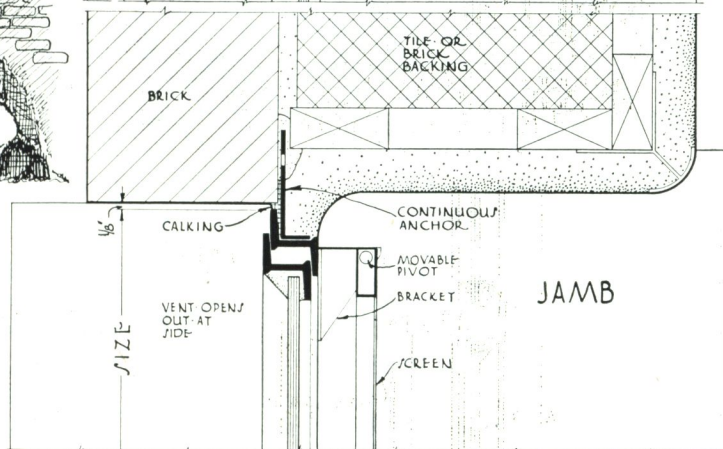
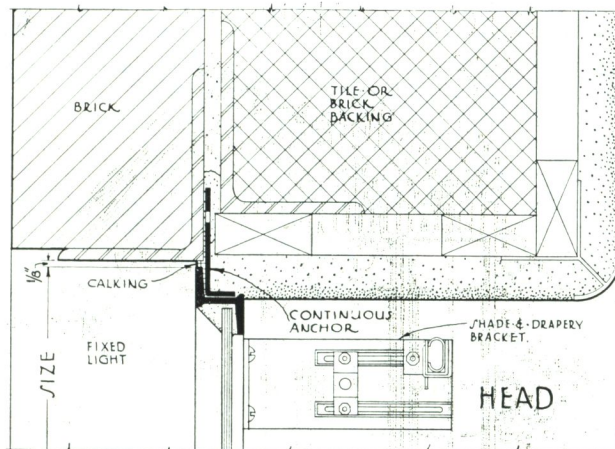
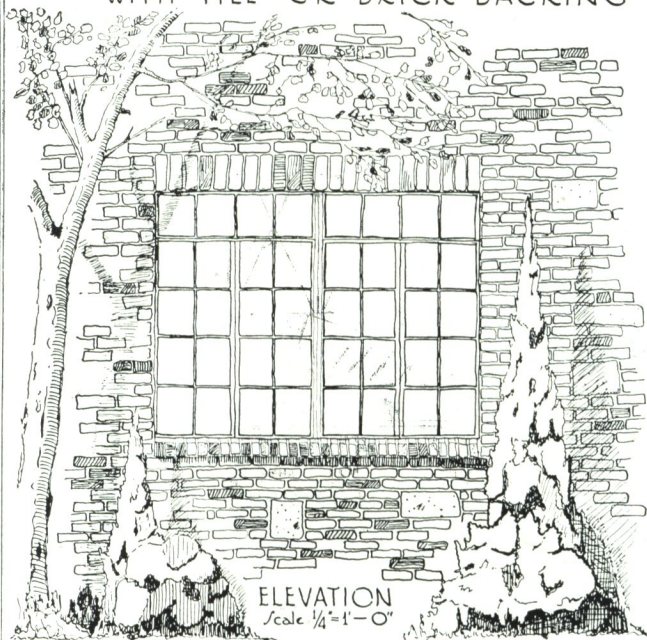
# LUPTON · CASEMENTS

## DETAILS · OF · INSTALLATION



IN · BRICK · WALLS  
WITH · TILE · OR · BRICK · BACKING

SCALE · FOR · DETAILS  
3" = 1'-0"



This detail shows the use of continuous anchors at head and jambs, the recommended practice for setting casements in brick or tile walls. Casement is shown equipped with Box Screens and shade brackets. If ventilator extends to the head, shade brackets cannot be attached. See pages 48 to 56 for description, hardware, sizes, screens, etc.

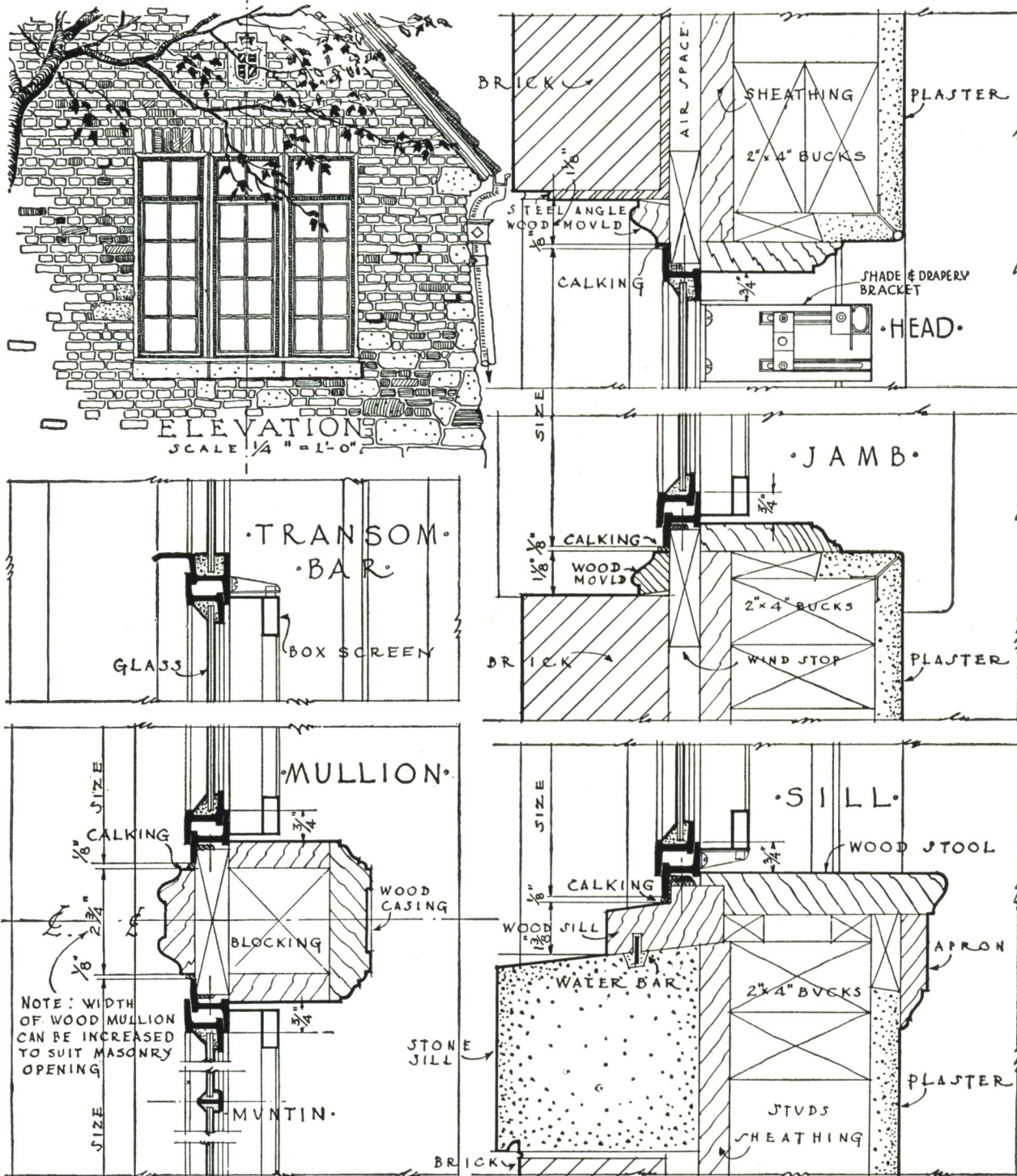


# LUPTON · CASEMENTS

## DETAILS · OF · INSTALLATION



BRICK · VENEER · WALLS · SCALE FOR DETAILS - 3" = 1'-0"



This detail shows casement set in brick veneer walls. Casement is shown equipped with Box Screens and shade brackets. If ventilator extends to the head, shade brackets cannot be attached. See pages 48 to 56 for description, hardware, sizes, screens, etc.

LUPTON PAGE 58



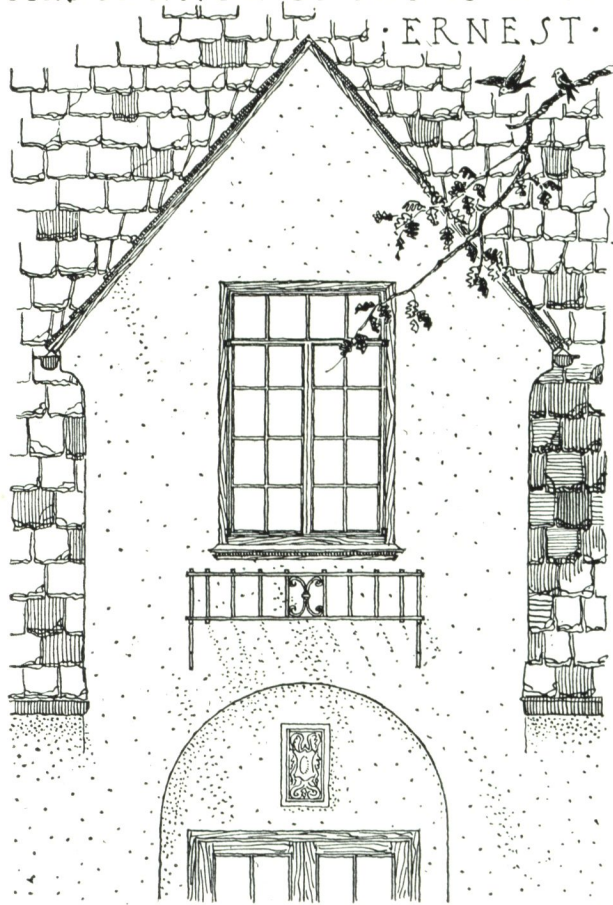
# LUPTON · CASEMENTS

## DETAILS · OF · INSTALLATION

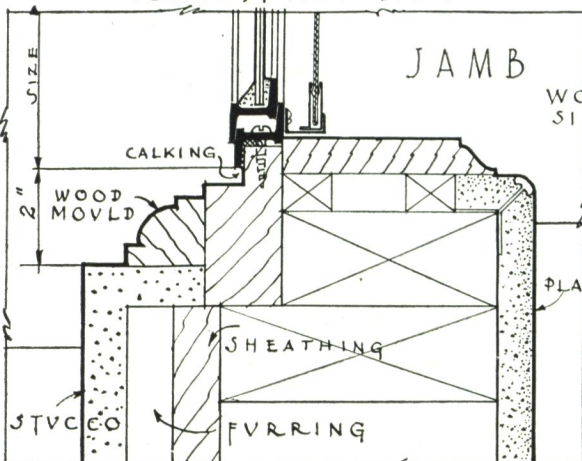
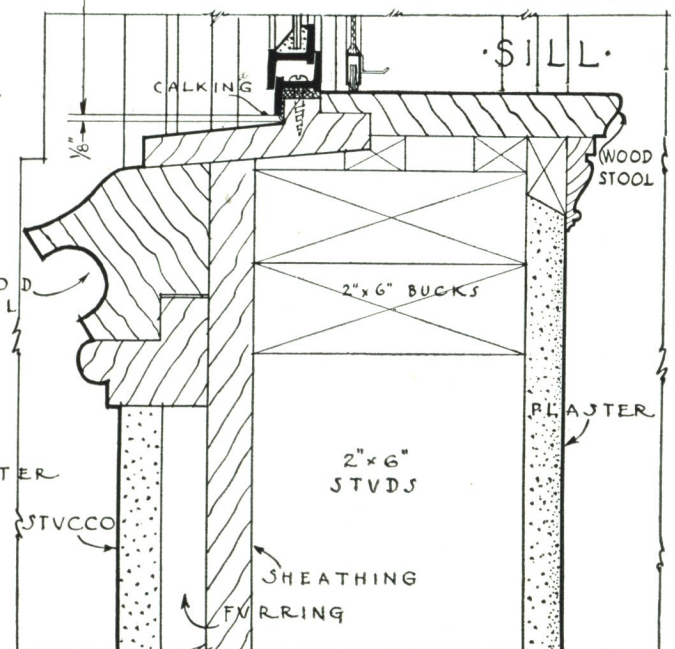
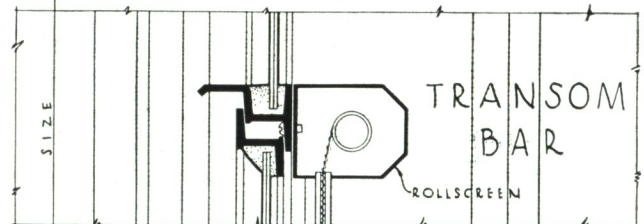
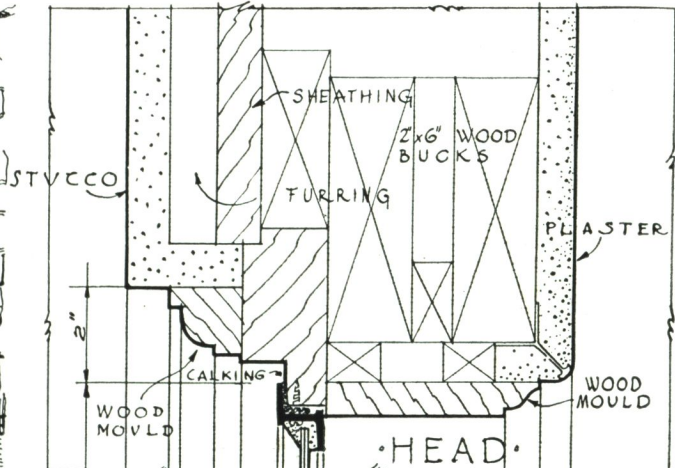
### · SECOND · STORY · WINDOW ·

SCALE FOR DETAILS · 3" = 1'-0"

RESIDENCE · OF · MR · R · W · MCKINNON · EVANSTON · ILLINOIS  
 · ERNEST · MAYO & MAYO · ARCHITECTS ·



· ELEVATION ·  
 SCALE 1/4 INCH = 1 FOOT ·



Details modified to show application of rollscreens.

Casement is shown with rollscreen attached to transom bar, permitting shade brackets to be attached to casement. Rollscreens may be concealed in the lintel if desired. See pages 48 to 56 for description, hardware, sizes, screens, etc.

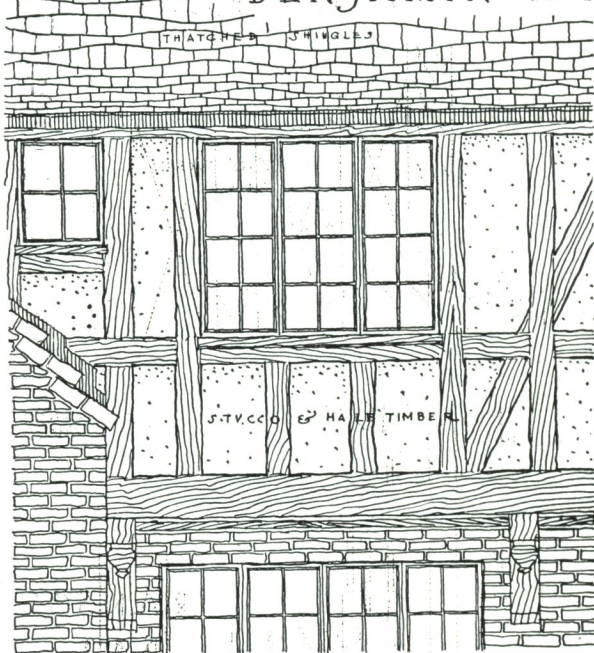


# LUPTON · CASEMENTS

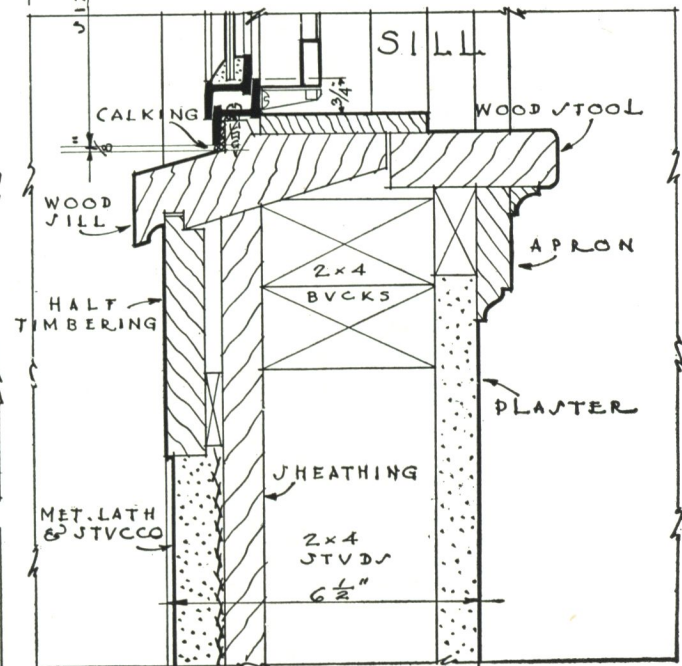
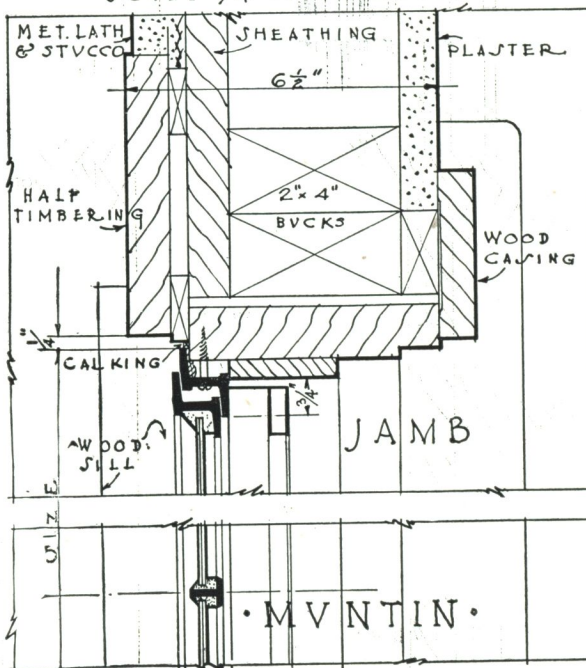
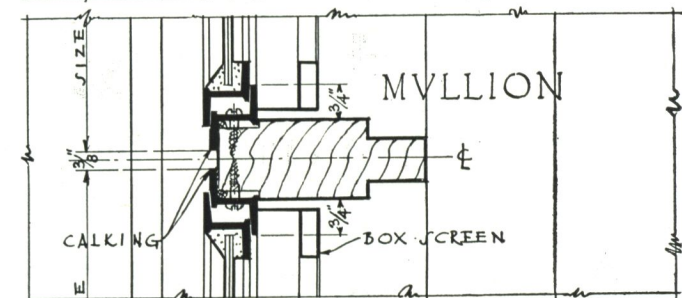
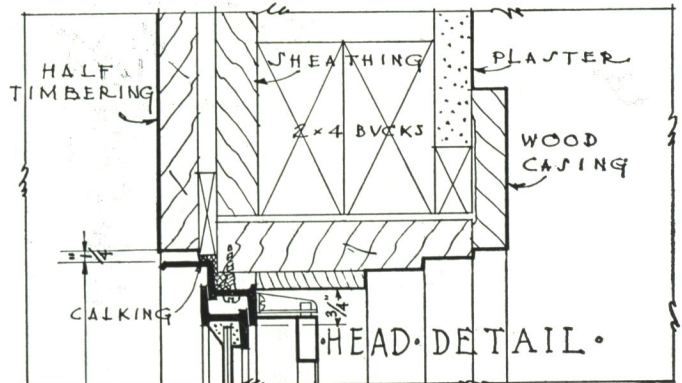
## DETAILS · OF · INSTALLATION



· WINDOW · IN · HALF · TIMBERED · WALL · SCALE FOR DETAILS 3" = 1'-0"  
 RESIDENCE · OF · MR · M · R · GLASER · GLENCOE · ILLINOIS  
 BENJAMIN · H · MARSHALL · · ARCHITECT · ·



· ELEVATION ·  
 SCALE 1/4 INCH = 1 FOOT



Details modified to show new type head drip and clearance required for screens.

When ventilators extend to head as shown in this detail, shade brackets cannot be attached to casement.  
 See pages 48 to 56 for description, hardware, sizes, screens, etc.



# LUPTON · CASEMENTS

## DETAILS · OF · INSTALLATION

### · BAY · WINDOW · IN · STAIR · HALL

RESIDENCE · OF · MR · GEORGE · C · WARREN · JR · SUMMIT · N · J ·  
· FORMAN & LIGHT · ARCHITECTS ·



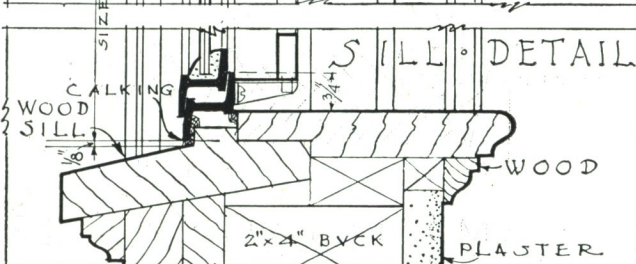
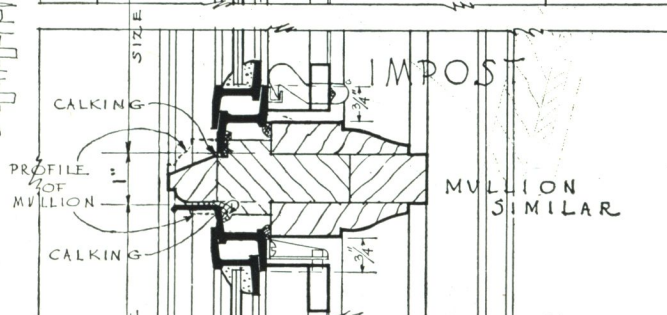
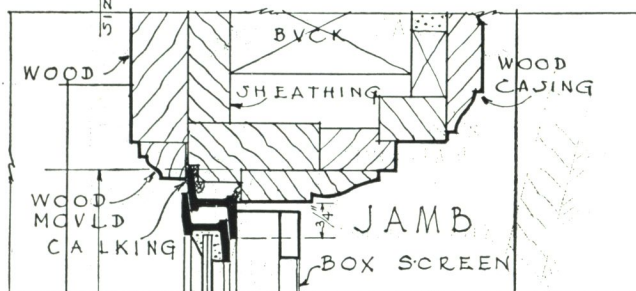
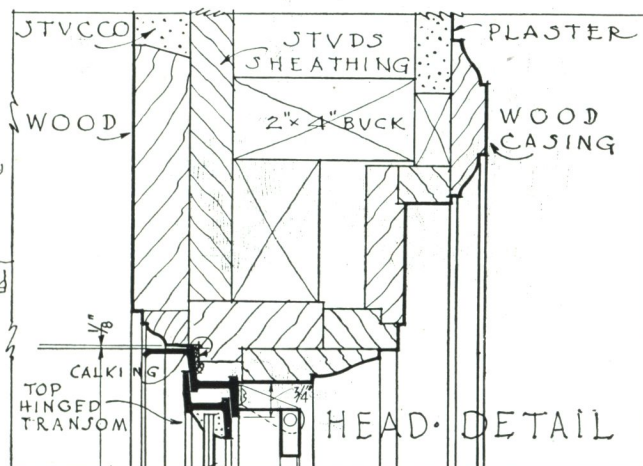
SCALE FOR  
DETAILS - 3" = 1'-0"



#### · ELEVATION ·

SCALE 1/4 INCH = 1 FOOT.

NOTE:  
DETAILS MAY BE MODIFIED  
TO ACCOMMODATE ROLLING  
TYPE SCREENS



Details modified to show application of rollscreens.

When ventilators extend to head as shown in this detail, shade brackets cannot be attached to casement.  
See pages 48 to 56 for description, hardware, sizes, screens, etc.



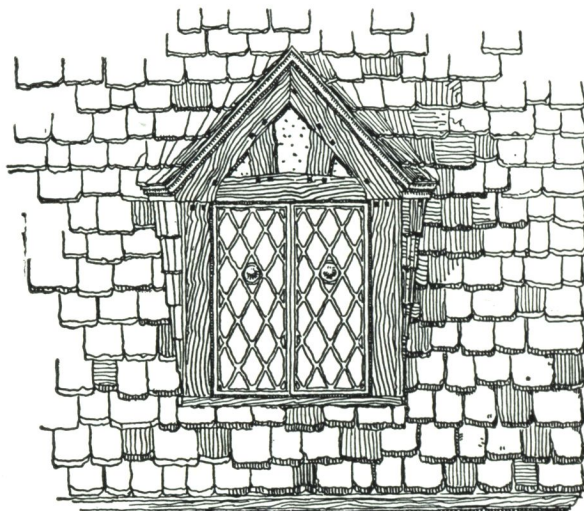
# LUPTON · CASEMENTS

## DETAILS · OF · INSTALLATION

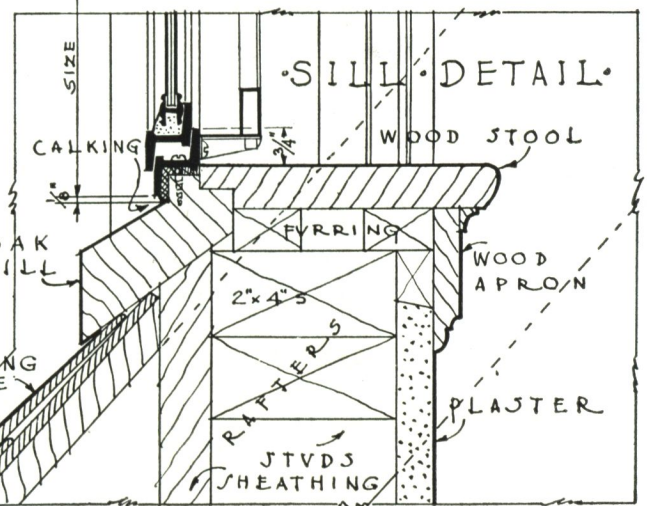
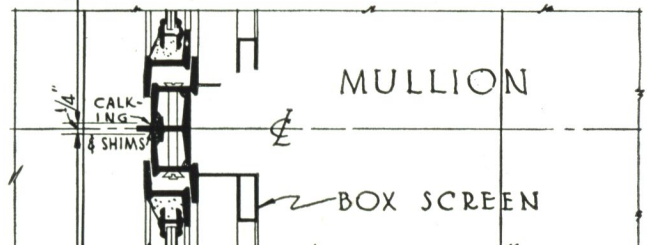
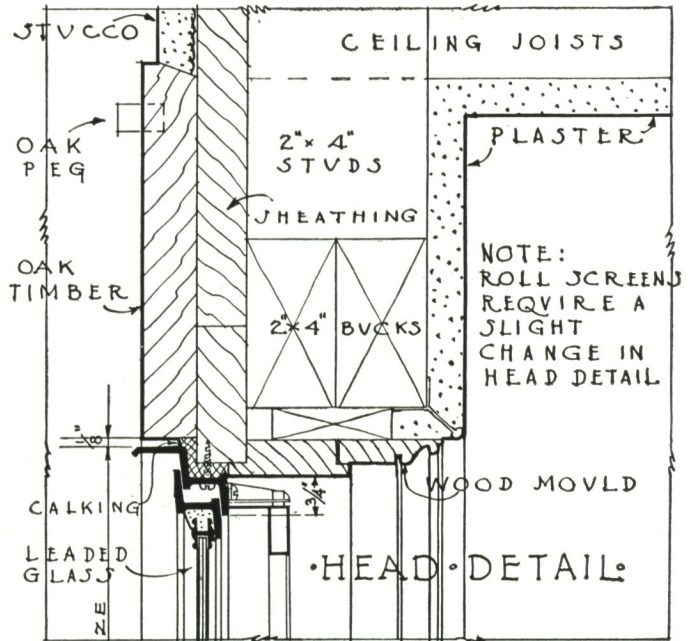
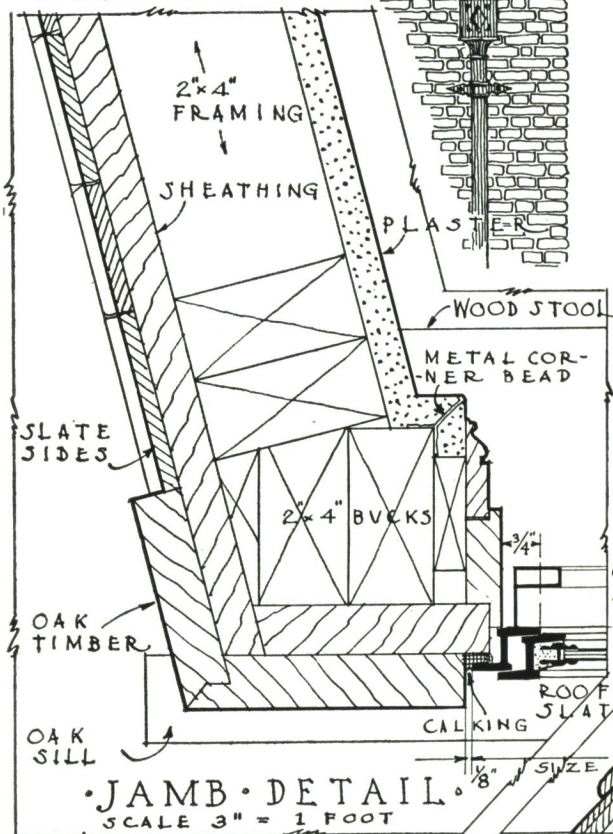
### ·FOR·A·DORMER·WINDOW·



SCALE FOR DETAILS  
3" = 1'-0"



SCALE 1/4" = 1'-0" ELEVATION



Muntins may be omitted for the use of leaded glass at no extra cost. Lupton does not furnish leaded glass. When ventilators extend to head, shade brackets cannot be attached to easement. See pages 48 to 56 for description, hardware, sizes, screens, etc.



# LUPTON · CASEMENTS

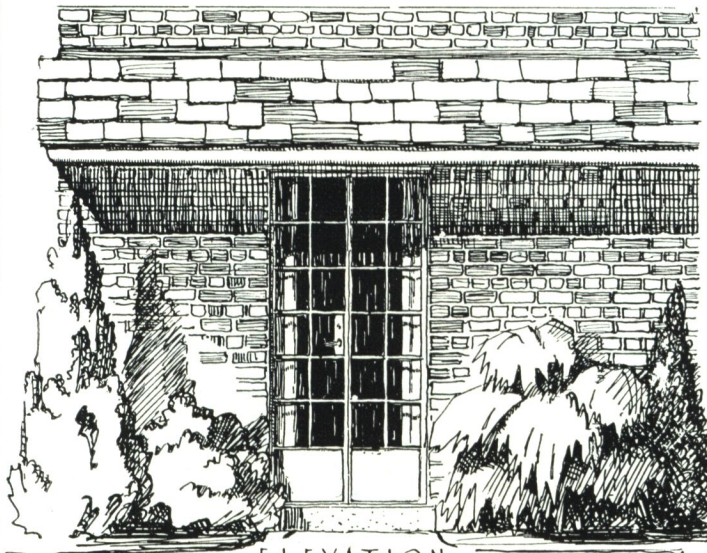
## DETAILS · OF · INSTALLATION

### STANDARD CASEMENT DOORS

INSTALLATION IN BRICK VENEERED WALLS

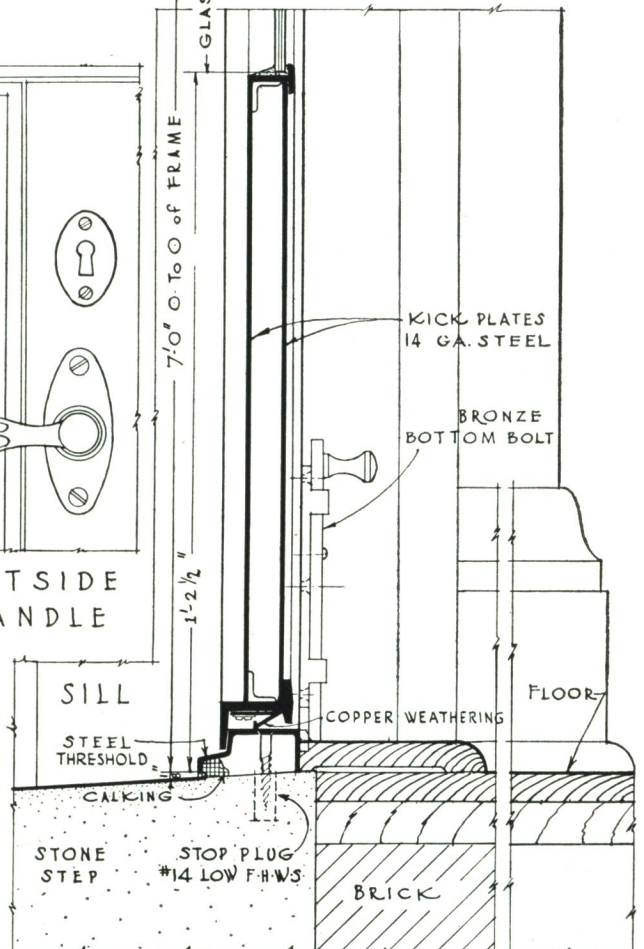
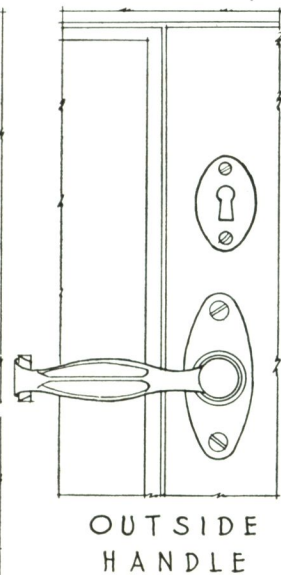
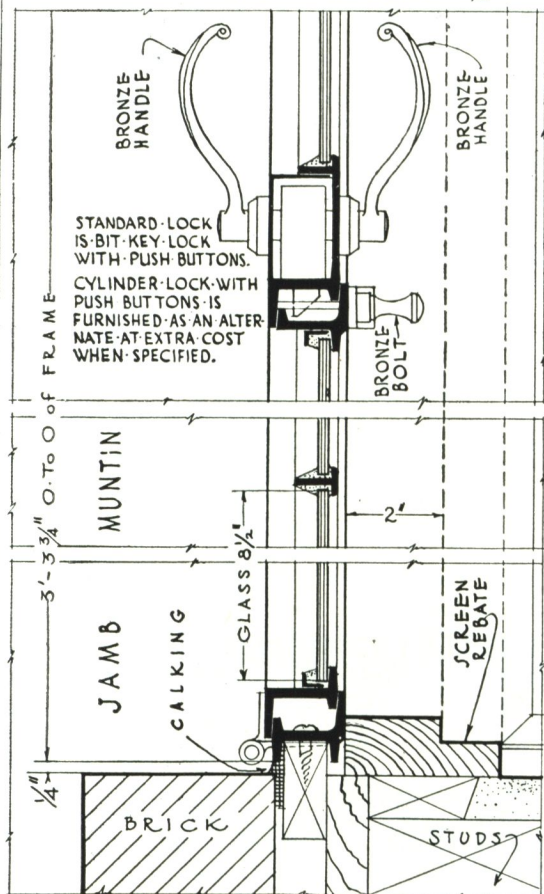
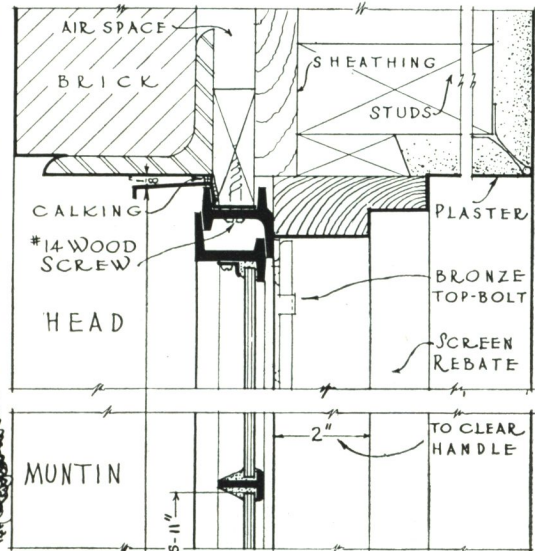


SCALE FOR DETAILS  
3" = 1'-0"



ELEVATION  
SCALE  $\frac{1}{4}$ " = 1'-0"

NOTE: ALL GLASS  $8\frac{1}{2}$ " x 11"

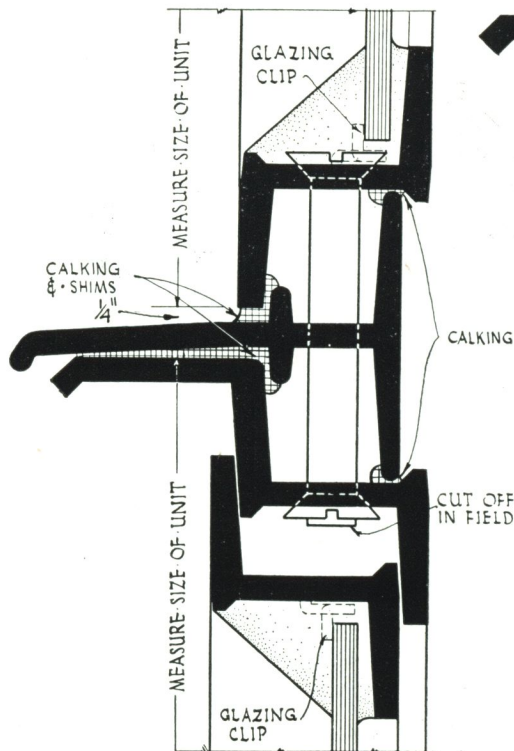


Standard casement doors are made in one size and design only, as shown in detail above. Other types of casement doors are described on pages 18 to 21



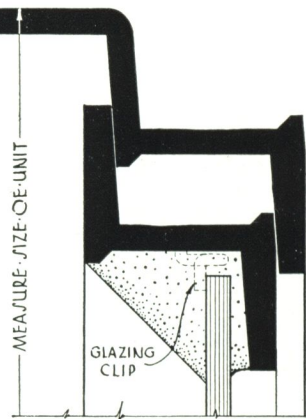
# LUPTON · CASEMENTS

## FULL · SIZE · SECTIONS

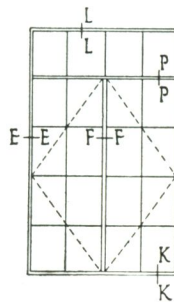


### IMPOST

FIXED · UNIT · SHOWN · OVER · VENTILATOR · UNIT  
SIMILAR · CONSTRUCTION · USED · BETWEEN · TWO  
FIXED · UNITS · OR · TWO · VENTILATOR · UNITS.



### HEAD FOR VENTILATOR UNIT

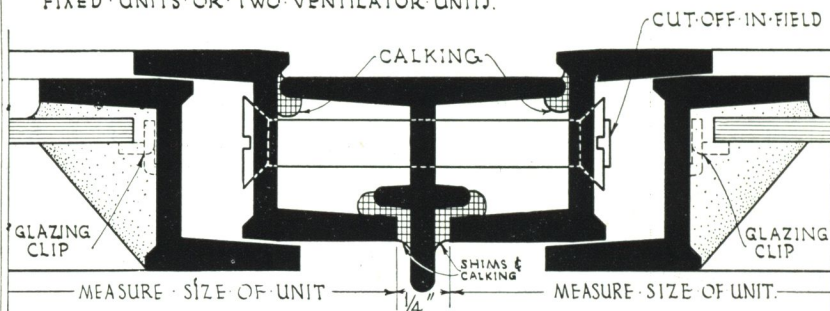


### HEAD SEC · L-L

### TRANSOM BAR SEC · P-P

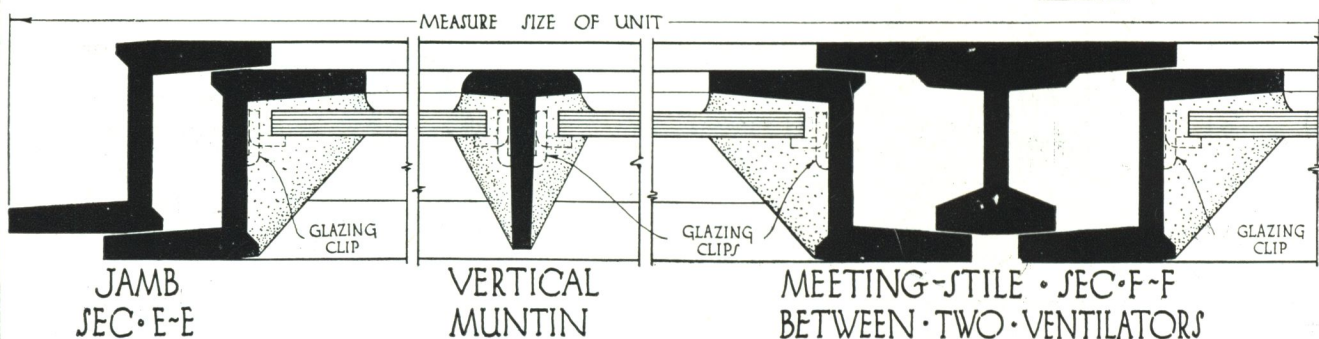
### HORIZONTAL MUNTIN

### SILL SEC · K-K



### MULLION

TWO · VENTILATOR · UNITS · SHOWN · SIDE · BY · SIDE.  
SIMILAR · MULLION · USED · BETWEEN · TWO · FIXED · UNITS,  
OR · BETWEEN · A · FIXED · UNIT · AND · A · VENTILATOR · UNIT.





## LUPTON BASEMENT WINDOWS

These windows give maximum light and ventilation and are carried in stock by Lupton Dealers. Made of the same steel sections as Lupton Residence Casements with welded corners and a bottom rail specially shaped to exclude moisture. Split hinge pins permit removal of ventilators from inside.

Security Type Window has small glass lights that

keep out intruders. It can be locked closed or about 5 in. open. Hinge pins in Security Windows cannot be removed.

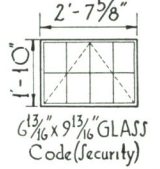
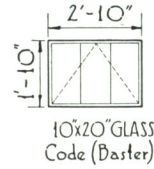
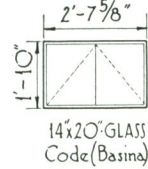
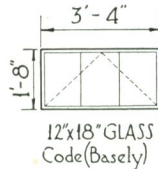
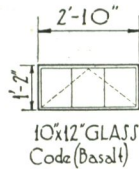
Provision is made for attaching screens.

Windows are painted gray and have steel locking pegs.

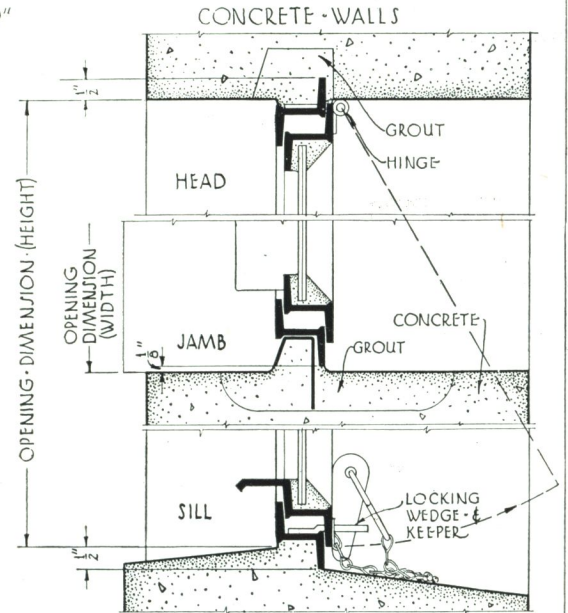
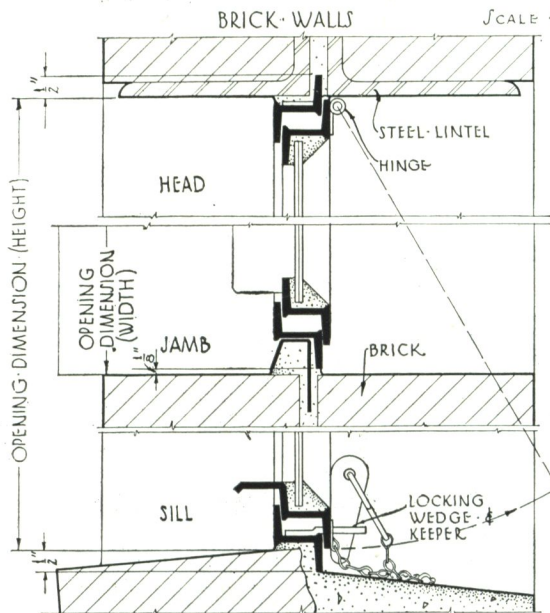
Padlocks are not furnished by Lupton.

### STANDARD TYPES AND SIZES

ALL DIMENSIONS ARE  
OPENING DIMENSIONS  
SEE DETAILS BELOW  
FOR MEASURE POINTS.



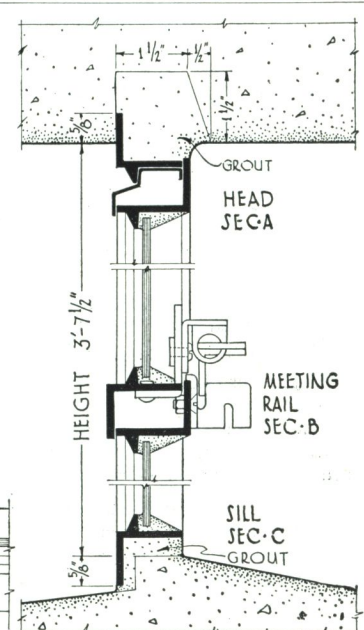
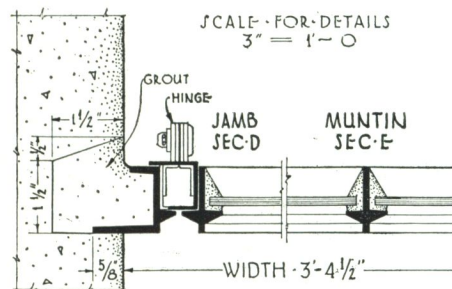
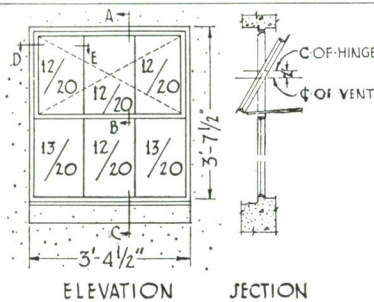
### DETAILS



## LUPTON UTILITY WINDOW

This window is designed to afford maximum light in small buildings, private garages and basements that are high above grade. The pivoted ventilator at the top of the window, swinging out at bottom and in at top, supplies fresh air without interfering with space requirements. Windows are glazed on the inside. Ventilators are equipped with a standard angle-iron stay bar and holder for hand operation and are painted gray.

Illustration shows details of an installation in a concrete wall; details for pivoted windows shown on pages 87 to 90 may be followed when setting in other types of walls.





# LUPTON ARCHITECTURAL PROJECTED WINDOWS

Some buildings, or parts of buildings, because of limits in cost or because of other restrictions will not permit the use of the casement windows previously described.

In such cases, Lupton Architectural Projected Windows, made of medium weight sections, will often fill the requirements of good ventilation and lighting with entire satisfaction.

Opening sizes, glass sizes and wall details are the same for both inside and outside glazed windows.

**Note:** Architectural Projected Windows are made in the same fifty standard sizes as the Projected Casements described on page 33 and the Double Hung Windows described on page 72.

## SPECIFICATION FOR LUPTON ARCHITECTURAL PROJECTED WINDOWS

## Work Included

1. Furnish and install where shown on drawings, Lupton Steel Architectural Projected Windows, manufactured by DAVID LUPTON'S SONS Co., Philadelphia, Pa.

## Materials

2. Frame members shall be heavy, specially designed, solid steel channel section.

3. Ventilator members shall be specially designed, solid steel angle sections.

4. Muntins shall be specially designed, solid steel cruciform section  $1\frac{3}{8}$  in. deep.

5. Vertical mullions shall be formed steel plate.

**Note:** Structural steel members forming Imposts are not furnished by the window manufacturer.

## Construction

*Note: Specify whether windows are to be inside or outside glazed.*

6. Both Frames and Ventilators shall be assembled by tenoned, riveted and welded joints at the corners. Continuous, two-point, flat contact weathering shall be provided between ventilators and frames.

7. Muntin Bars shall be attached to frame members by tenoned, riveted joints and shall be so interlocked at their intersections that the strength and rigidity at the intersection is increased.

8. Vertical Mullions and bolts for attachment shall be provided where two or more windows are placed side by side.

9. Anchor Clips of 13-gauge steel for jamb, sill and head shall be furnished and applied in field.

10. Each ventilator shall be accurately pivoted on two ventilator arms of solid steel. The connections between the ventilator arms and the window frames shall be made by steel arm blocks.

11. Each ventilator shall be equipped with two brass friction shoes, sliding vertically in the ventilator jambs to guide the ventilator and prevent rattling. Each shoe shall be equipped with a rustproofed, flat

steel spring attached to the ventilator to insure constant pressure at the jambs.

**12.** Universal Clip shall be an angle clip 1½ in. x 1 in., 2 in. long riveted to the ventilator frame to provide for attaching cam handle.

# ARCHITECTURAL • PROJECTED • WINDOWS

## • INSIDE • OR • OUTSIDE • GLAZED •

### STANDARD • TYPES • AND • SIZES

| WINDOW DIMENSIONS<br>↓<br>GLASS SIZE       | 3'-0"                                       | 3'-6"                                       | 4'-0"                                       | 4'-6"                                       | 5'-0"                                       | V. DIMEN<br>SEE DETAILS FOR<br>MEASURE POINTS        |
|--------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|------------------------------------------------------|
| 4'-6"<br>13 3/4"<br>24"<br>13 3/4"         | EXP. GLASS AREA<br>1103.4 sq ft<br>PBT 3046 | EXP. GLASS AREA<br>1269.4 sq ft<br>PBT 3646 | EXP. GLASS AREA<br>1470.4 sq ft<br>PBT 4046 | EXP. GLASS AREA<br>1672.4 sq ft<br>PBT 4646 | EXP. GLASS AREA<br>1882.4 sq ft<br>PBT 5046 | 1'-1 1/16"<br>1'-1 1/8"<br>1'-1 1/4"                 |
| 5'-0"<br>16 3/4"<br>24"<br>16 3/4"         | 1178<br>PBT 3050                            | 1377<br>PBT 3650                            | 1610<br>PBT 4050                            | 1817<br>PBT 4650                            | 2050<br>PBT 5050                            | 1'-4 5/16"<br>1'-1 1/8"<br>1'-4 1/8"                 |
| 5'-6"<br>19 3/4"<br>24"<br>19 3/4"         | 1315<br>PBT 3056                            | 1526<br>PBT 3656                            | 1853<br>PBT 4056                            | 2111<br>PBT 4656                            | 2376<br>PBT 5056                            | 1'-7 7/16"<br>1'-1 1/8"<br>1'-7 7/16"                |
| 6'-0"<br>22 3/4"<br>27"<br>19 3/4"         | 1449<br>PBT 3060                            | 1680<br>PBT 3660                            | 1966<br>PBT 4060                            | 2215<br>PBT 4660                            | 2478<br>PBT 5060                            | 1'-10 1/16"<br>2'-2 1/8"<br>1'-7 7/16"               |
| 6'-6"<br>16 3/8"<br>21"<br>21"<br>16 3/4"  | 1580<br>PBT 3066                            | 1827<br>PBT 3666                            | 2134<br>PBT 4066                            | 2403<br>PBT 4666                            | 2710<br>PBT 5066                            | 1'-3 15/16"<br>1'-8 1/8"<br>1'-8 1/8"<br>1'-4 3/4"   |
| 7'-0"<br>16 3/8"<br>24"<br>24"<br>16 3/4"  | 1717<br>PBT 3070                            | 1982<br>PBT 3670                            | 2312<br>PBT 4070                            | 2608<br>PBT 4670                            | 2872<br>PBT 5070                            | 1'-3 15/16"<br>1'-11 1/8"<br>1'-11 1/8"<br>1'-4 3/4" |
| 7'-6"<br>16 3/8"<br>27"<br>27"<br>16 3/4"  | 1854<br>PBT 3076                            | 2137<br>PBT 3676                            | 2492<br>PBT 4076                            | 2814<br>PBT 4676                            | 3239<br>PBT 5076                            | 1'-3 15/16"<br>2'-2 1/8"<br>2'-2 1/8"<br>1'-4 3/4"   |
| 8'-0"<br>19 3/16"<br>27"<br>27"<br>19 3/4" | 1991<br>PBT 3080                            | 2294<br>PBT 3680                            | 2674<br>PBT 4080                            | 3061<br>PBT 4680                            | 3447<br>PBT 5080                            | 1'-6 15/16"<br>2'-2 1/8"<br>2'-2 1/8"<br>1'-7 7/16"  |
| 8'-6"<br>22 3/4"<br>27"<br>27"<br>22 3/8"  | 2128<br>PBT 3086                            | 2447<br>PBT 3686                            | 2856<br>PBT 4086                            | 3220<br>PBT 4686                            | 3627<br>PBT 5086                            | 1'-10 1/16"<br>2'-2 1/8"<br>2'-2 1/8"<br>1'-9 15/16" |
| 9'-0"<br>16 3/8"<br>24"<br>24"<br>16 3/4"  | 2186<br>PBT 3090                            | 2532<br>PBT 3690                            | 2944<br>PBT 4090                            | 3334<br>PBT 4690                            | 3767<br>PBT 5090                            | 1'-3 15/16"<br>1'-11 1/8"<br>1'-11 1/8"<br>1'-4 3/4" |

H. DIMEN.  
SEE DETAILS FOR  
MEASURE POINTS

\* Glass Sizes are for Fixed Lights - Glass in Ventilators is 2" smaller in width and height.

*Standard sizes reduce costs of windows, lintels, sills, shades, awnings and screens*



**Hardware**

13. All handles shall be bronze.

*Note: Specify polished or natural finish as desired.*

14. All bronze hardware (listed below) shall be shipped unattached, carefully packed to prevent damage until applied for use.

*Note: The following hardware is standard:*

**For Projected-Out-at-Bottom Ventilators**

Bronze Cam Handle—when handle is within reach from floor.

Bronze Ring Type Cam Handle and Bronze Pull Down Ring—when handle is beyond reach from floor.

**For Projected-In-at-Top Ventilators**

Bronze Cam Handle.

**Erection (See page 1)**

15. All Architectural Projected Windows shall be erected in prepared openings by the window contractor unless otherwise specified.

16. All Architectural Projected Windows shall be set plumb and true, properly aligned and securely anchored before glazing. Mullions shall be bolted securely to Frames.

*Note: Specify calking if desired. See note at end of specification.*

*Note: Include in the masonry specification that all masonry openings shall be accurately constructed in accordance with the*

*installation details for Architectural Projected Windows. All grouting, pointing, etc., should be done by the mason contractor after the windows are set.*

**Painting (See page 1)**

17. All Architectural Projected Windows shall receive one shop coat of window manufacturer's standard dark gray paint, oven-dried.

*Note: See page 1.*

**Glass and Glazing**

*Note: (See also page 1.) Specify glass and glazing under proper heading elsewhere in specifications.*

(a) Do not specify single thickness glass.

(b) Specify a high-grade steel window putty (ordinary wood sash putty must not be used).

(c) Specify that Lupton Architectural Projected Windows shall be glazed from the outside, the glass shall be set in a bed of putty, and held by Lupton standard wire glazing clips.

or (d) Specify that Lupton Architectural Projected Windows shall be glazed from the inside, the glass shall be set in a bed of putty and held by continuous glazing stops.

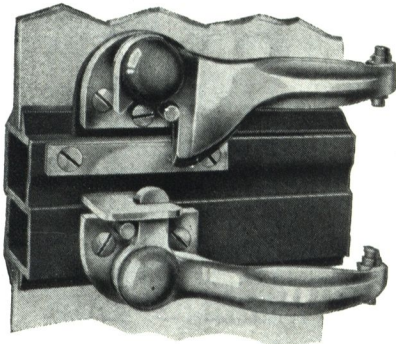
**CALKING**

Calking furnished at added cost:

1. When specified non-staining elastic calking cement will be furnished for calking at head, jams and sill.
2. Erectors will apply this calking cement at time of erection at the points indicated in the standard details, only when such application is specified.

**HARDWARE FOR LUPTON ARCHITECTURAL PROJECTED WINDOWS**

*Handles and pull-down rings are bronze with natural bronze finish or bronze highly polished, as specified*

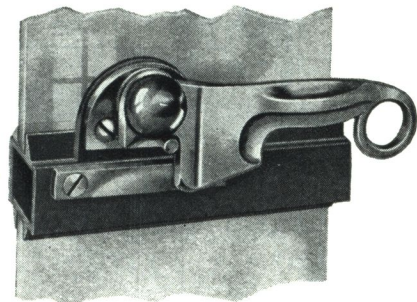


**Cam Handle No. 268**

(at top)

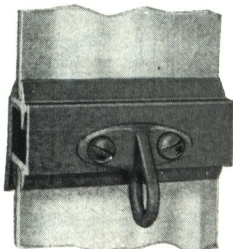
Used on Projected-Out-at-Bottom ventilators within reach from floor. Mounted on universal clip riveted to frame of ventilator.

Lower handle No. 266 shown in combination with No. 268 and illustrates its application at meeting rail condition.



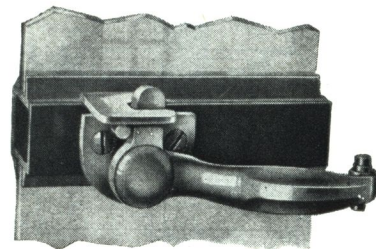
**Ring Type Cam Handle No. 328**

Used at center of Projected-Out-at-Bottom ventilators beyond reach from floor. For pole operation. Mounted on universal clip riveted to frame of ventilator.



**Pull-down Ring No. 358**

Used on Projected-Out-at-Bottom ventilators. For pole operation.



**Cam Handle No. 266**

Used on Projected-In-at-Top ventilators. Steel keeper welded to frame

*A special is an odd size between two less expensive standards*

LUPTON PAGE 67

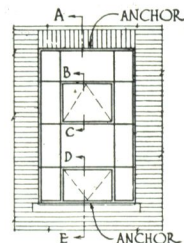


# ARCHITECTURAL • PROJECTED • WINDOWS • OUTSIDE • PUTTY • GLAZED

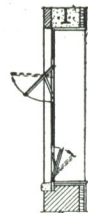
SCALE • FOR • DETAILS • 3" = 1'-0"

## • NOTE •

Ventilators open to positions indicated by dotted lines to permit cleaning from inside the building

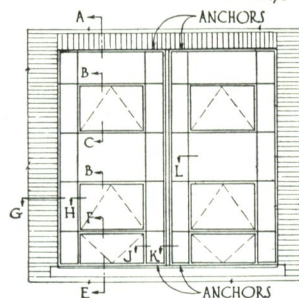


• ELEVATION •  
VENTILATORS • CLOSED



• SECTION •  
VENTILATORS • OPEN

SCALE 1/8" = 1'-0"

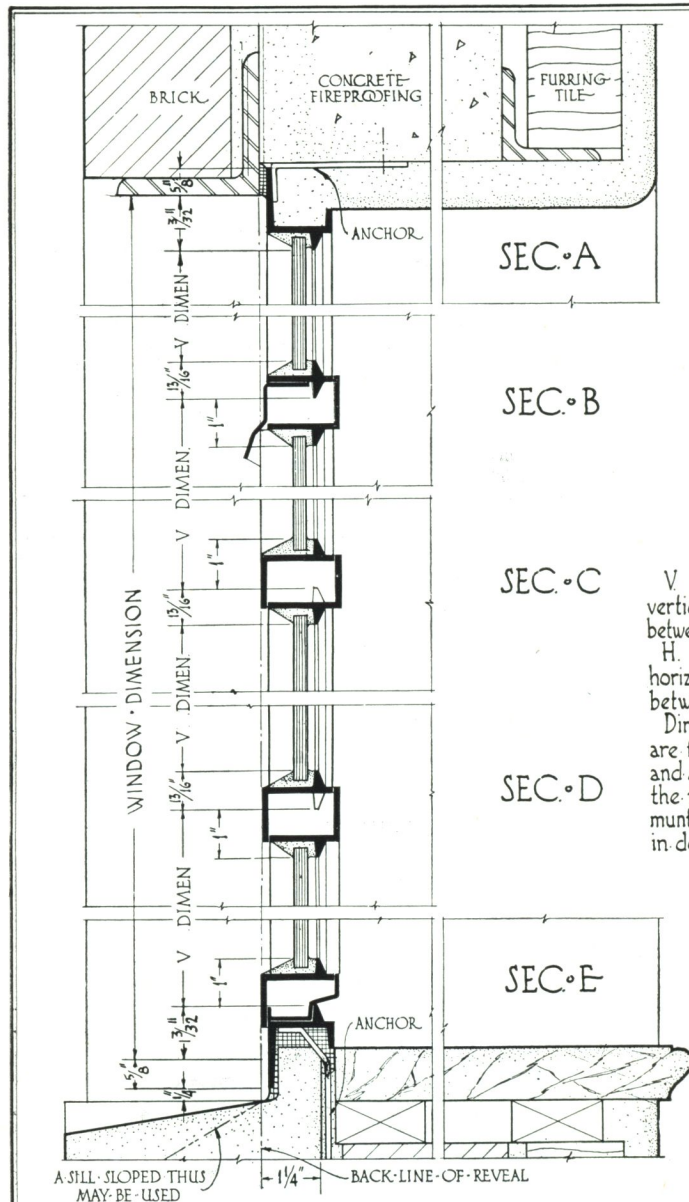


• ELEVATION •  
VENTILATORS • CLOSED

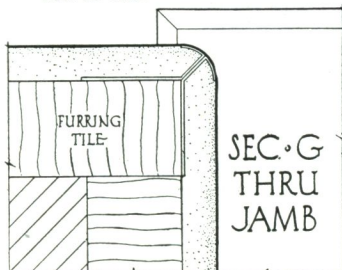


• SECTION •  
VENTILATORS • OPEN

V Dimens. are the vertical distances - between sight - lines.  
H. Dimens. are the horizontal distances - between sight - lines.  
Dimensions given are for fixed lights and are measured to the flanges of the muntin bars as shown in details.



SEC. F • THRU  
MEETING • RAIL



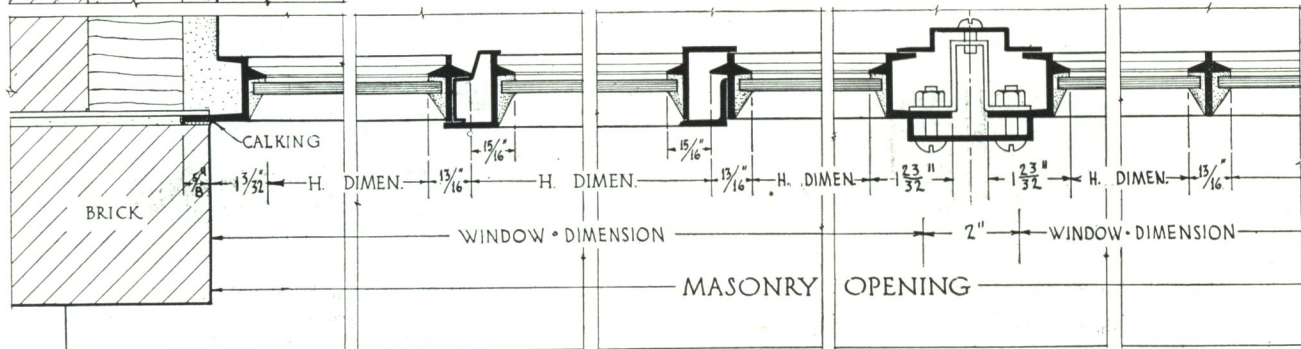
SEC. G  
THRU  
JAMB

SEC. H

SEC. J

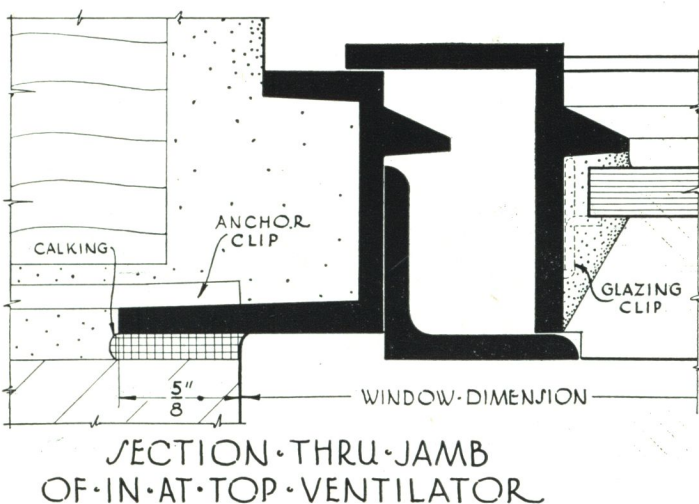
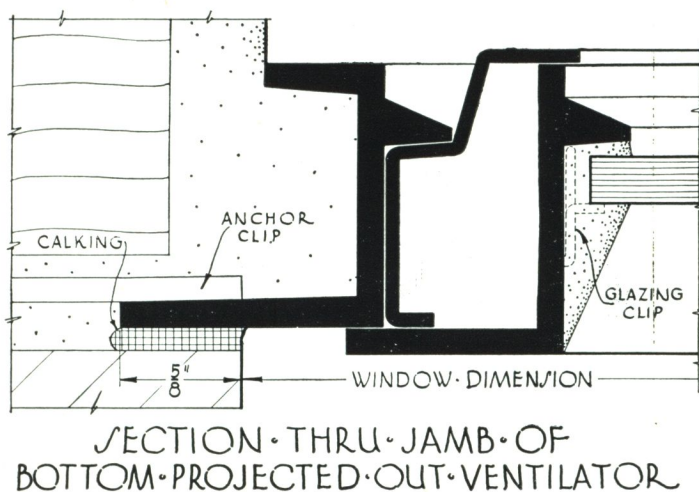
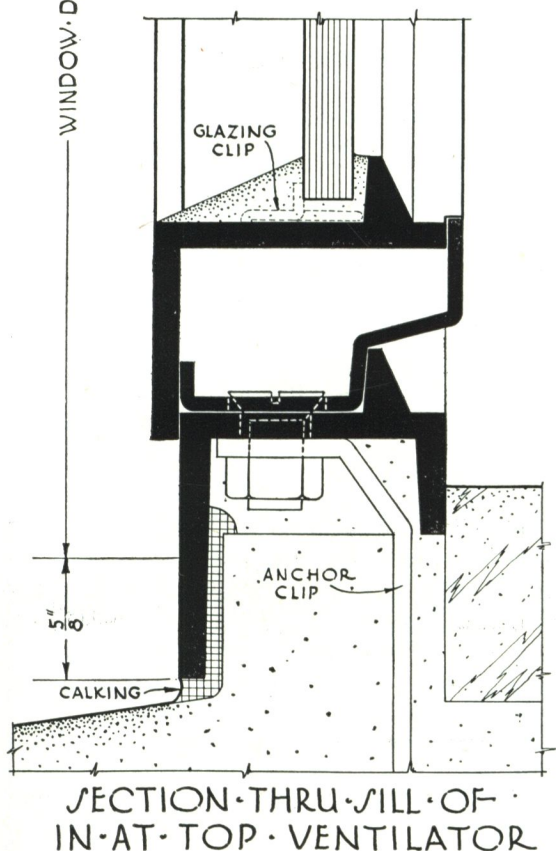
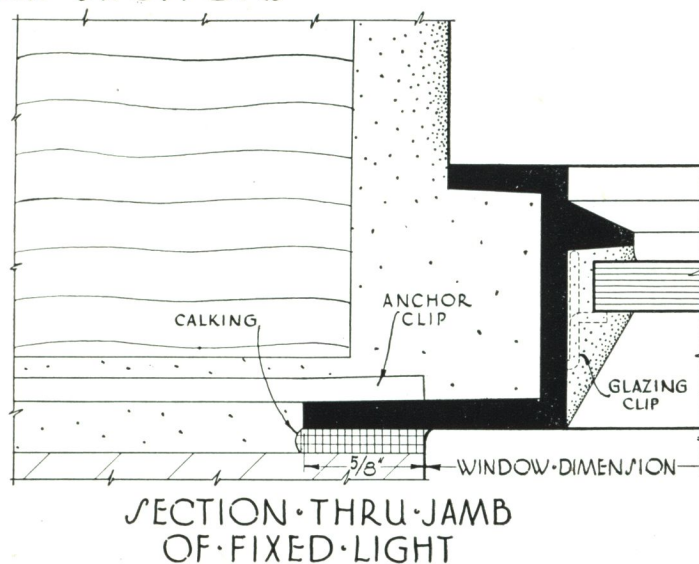
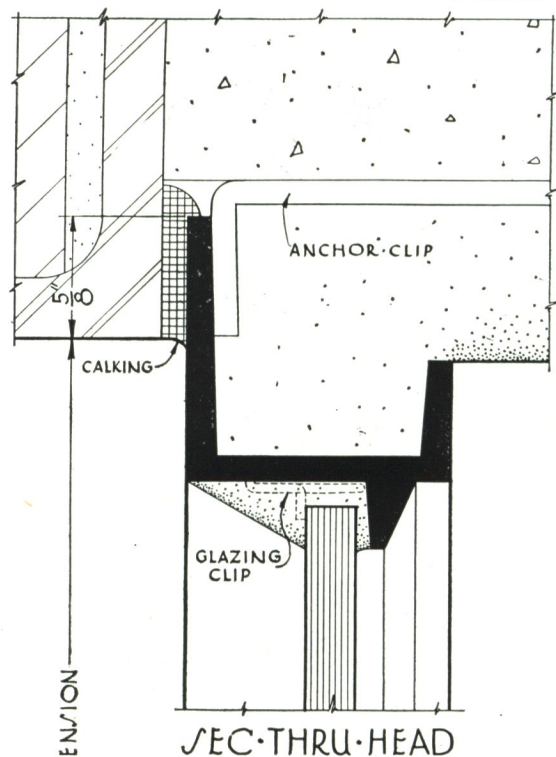
SEC. K • THRU  
MULLION

SEC. L • THRU  
MUNTIN





# ARCHITECTURAL • PROJECTED • WINDOWS OUTSIDE • PUTTY • GLAZED FULL • SIZE • SECTIONS



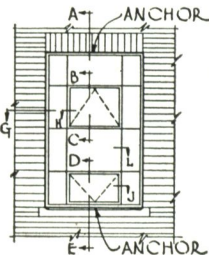


# ARCHITECTURAL • PROJECTED • WINDOWS • INSIDE • GLAZED

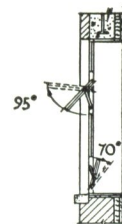
SCALE • FOR • DETAILS • 3" 1'-0"

## • NOTE •

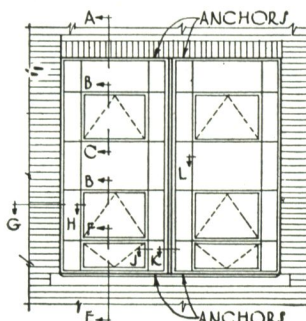
Ventilators open to positions indicated by dotted lines to permit cleaning from inside the building.



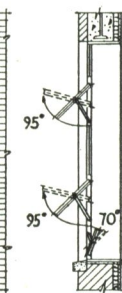
• ELEVATION •  
VENTILATORS • CLOSED



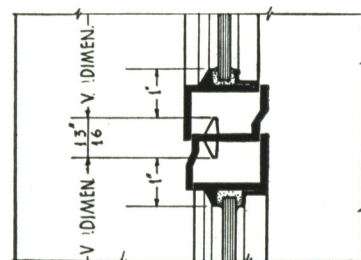
• SECTION •  
VENTS • OPEN



• ELEVATION •  
VENTILATORS • CLOSED



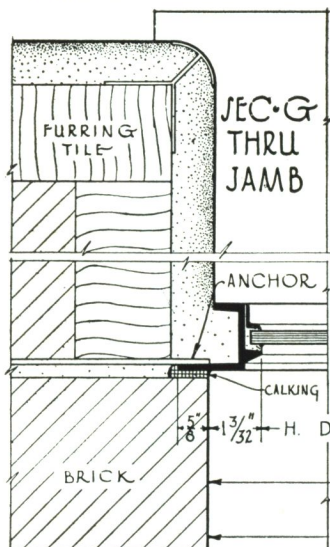
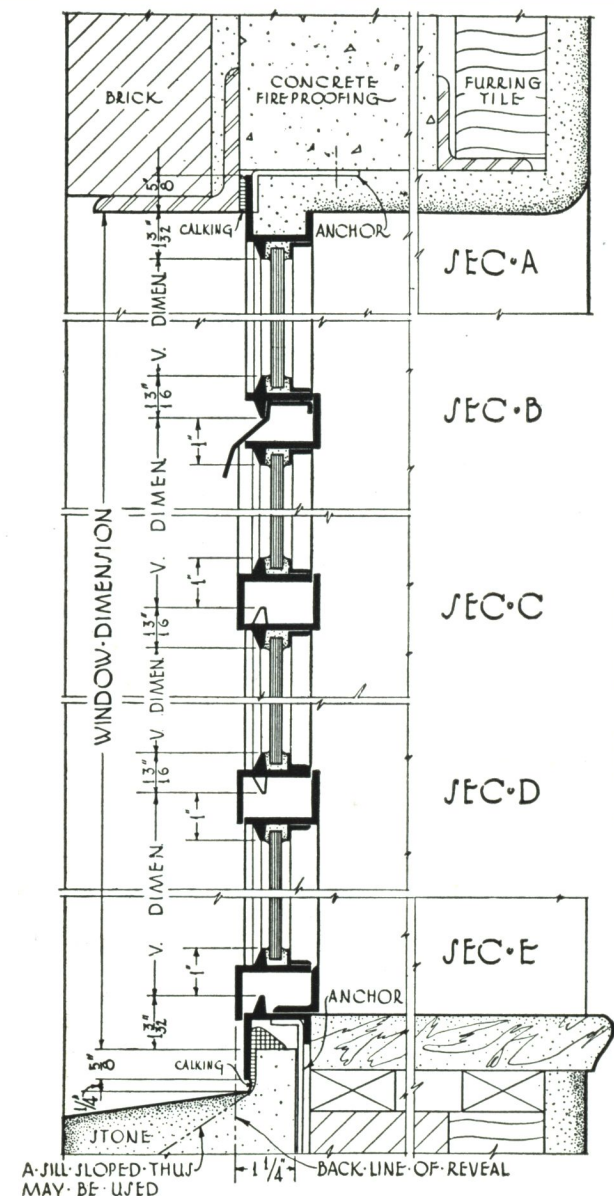
• SECTION •  
VENTS • OPEN



SEC. F • THRU  
MEETING • RAIL

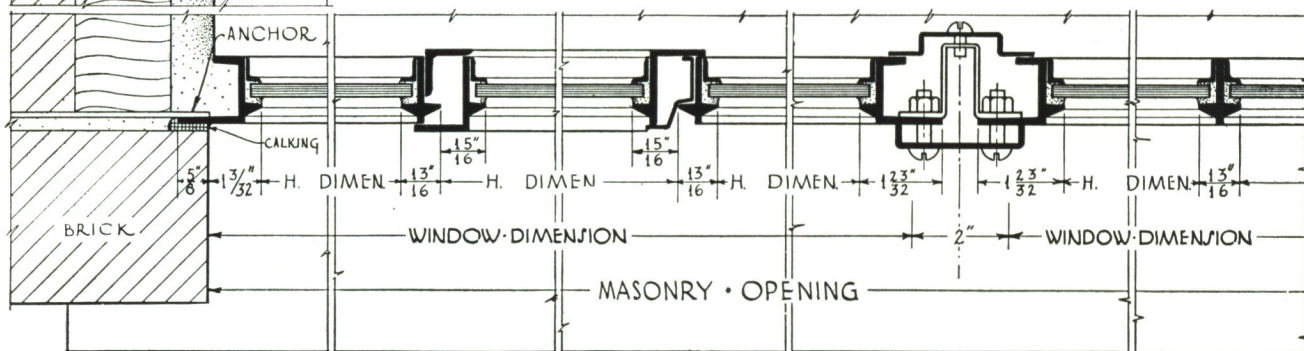
SEC. K • THRU  
MULLION

SEC. L • THRU  
MUNTIN



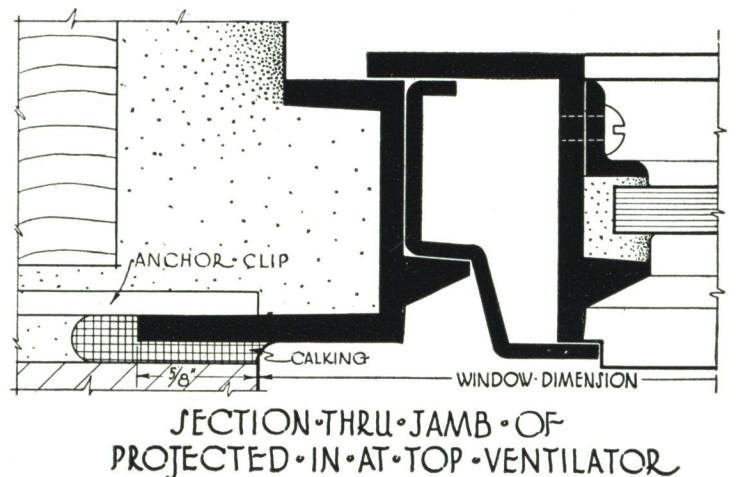
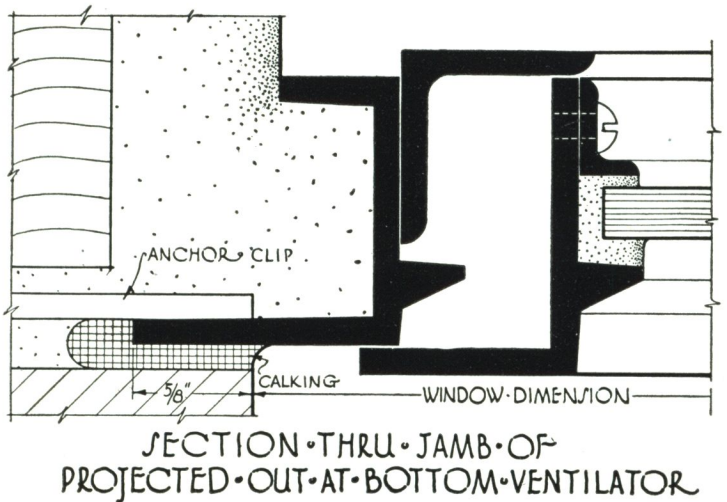
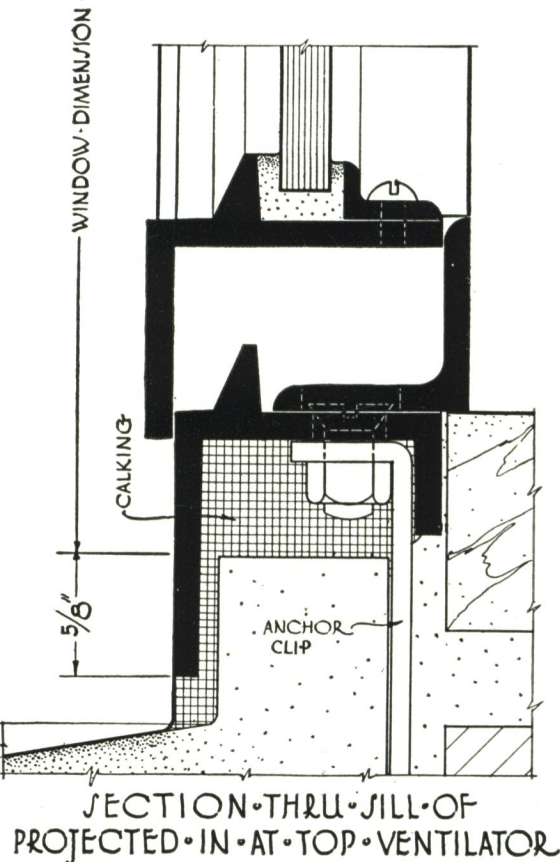
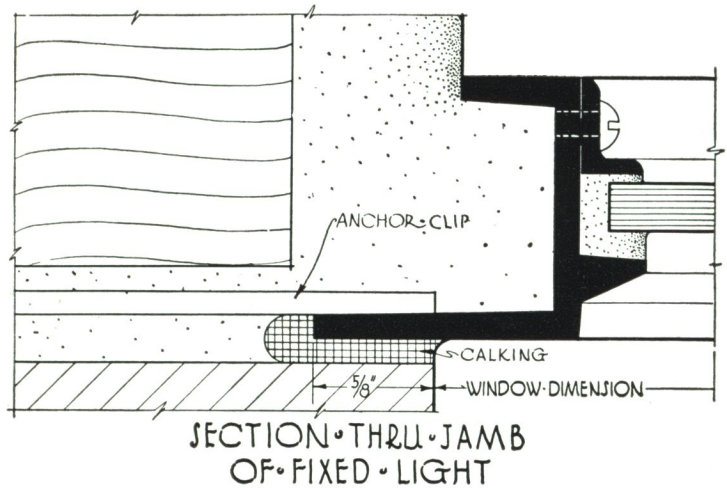
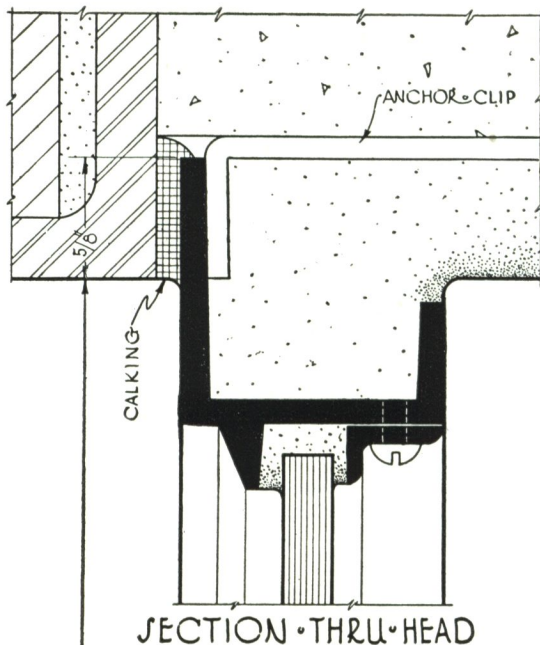
SEC. H

SEC. J





ARCHITECTURAL • PROJECTED • WINDOWS  
INSIDE • GLAZED • WITH • GLAZING • ANGLES  
FULL • SIZE • SECTIONS





## LUPTON DOUBLE HUNG WINDOWS

These windows are so designed as to permit the sash to slide up and down easily and at the same time to prevent excessive air infiltration. The frames and sash are made of zinc-coated steel plate. They are furnished with or without muntins. Standard practice includes weather-stripping at jambs and sill but we furnish, at extra cost, additional weather-

stripping at head and meeting rail when it is so specified. There are two types, E and F, each in fifty sizes.

Windows without muntins are standard. With muntins arranged as shown on page 73 the window is a "listed special." Muntins arranged any other way make the window special.

**[ Note: These windows are made in the same fifty standard sizes as the Projected Casements described on page 33 and the Architectural Projected Windows described on page 66. ]**

### SPECIFICATION FOR LUPTON DOUBLE HUNG WINDOWS (Types E and F)

#### Work Included

1. Furnish and install where shown on drawings, Lupton Steel Double Hung Windows manufactured by DAVID LUPTON'S Sons Co., Philadelphia, Pa.

#### Materials

2. Sash members shall be of 14 gauge on windows up to 4 ft. 0 in. wide, and 13 gauge on windows over 4 ft. 0 in. wide. Glazing strips shall be 14 gauge for all rails except bottom rail. The glazing strip for the bottom rail shall be 13 gauge. All sash members shall be cold galvanized strip steel.

3. Frame members (E Type) — Head, head cover, jamb box and removable jamb piece shall be made of 20 gauge and the sill of 16 gauge. All frame members shall be hot galvanized, dull-coated steel sheets.

4. Frame members (F Type) — The head shall be made of 16 gauge, the head cover of 16 gauge, the sill of 13 gauge, the jamb box proper of 14 gauge and the removable jamb piece of 16 gauge. All frame members shall be hot galvanized, dull-coated steel sheets.

5. Parting Strips shall be made of 16 gauge cold galvanized strip steel.

6. Muntin Bars shall be made of 16 gauge cold galvanized strip steel.

7. Muntin Glazing Strips shall be made of 14 gauge cold galvanized strip steel.

#### Construction

8. Sash members shall be designed with flanges to enter groove in head and jamb boxes. The bottom rail of the lower sash shall form a double contact with the sill member. The meeting rail shall interlock. The sash members shall be mitered and arc welded at all corners.

9. Frame members — The head (exclusive of cover) and sill shall each be made of one piece of steel. The jamb box shall consist of three parts: (1) the box proper, (2) a removable piece for access to weights, (3) a parting strip. The removable piece and the parting strip shall each be in two sections with the joint at the level of the meeting rail. The sash weights shall be separated by a division strip. The frame members shall be coped to fit each other at corners and arc welded.

10. Muntin bars shall be spotwelded to sash members.

11. Muntin Glazing Strips shall be attached to muntins with low round-head machine screws.

12. Weather Stripping of 22 gauge steel, galvanized, shall be furnished for the jambs and a sponge-rubber weather-strip shall be furnished at sill.

**Note:** Additional spring bronze weathering at head and meeting rail is furnished when specified at slight added cost.

#### Attached Hardware

13. Each window shall be equipped with four pulleys machined from cold-rolled steel. The pulleys shall have oilless bearings and shall be set in a 13 gauge steel pulley pan. The sash chain shall be American Chain Co. No. 130 Galvanized Sash Chain.

14. The Glazing Strip for the bottom rail of the lower sash shall act as a continuous lift.

| DOUBLE • HUNG • WINDOWS      |                        |         |         |         |         |
|------------------------------|------------------------|---------|---------|---------|---------|
| • TYPES • E • & • F •        |                        |         |         |         |         |
| STANDARD • TYPES • & • SIZES |                        |         |         |         |         |
| WINDOW<br>DIMENSION          | * → 3'-0"              | 3'-6"   | 4'-0"   | 4'-6"   | 5'-0"   |
|                              | GLASS • SIZE → 30 1/2" | 36 1/2" | 42 1/2" | 48 1/2" | 54 1/2" |
| 4' - 6"                      | 25"<br>25"<br>DH 3046  | DH 3646 | DH 4046 | DH 4646 | DH 5046 |
| 5' - 0"                      | 26"<br>26"<br>DH 3050  | DH 3650 | DH 4050 | DH 4650 | DH 5050 |
| 5' - 6"                      | 29"<br>29"<br>DH 3056  | DH 3656 | DH 4056 | DH 4656 | DH 5056 |
| 6' - 0"                      | 32"<br>32"<br>DH 3060  | DH 3660 | DH 4060 | DH 4660 | DH 5060 |
| 6' - 6"                      | 35"<br>35"<br>DH 3066  | DH 3666 | DH 4066 | DH 4666 | DH 5066 |
| 7' - 0"                      | 38"<br>38"<br>DH 3070  | DH 3670 | DH 4070 | DH 4670 | DH 5070 |
| 7' - 6"                      | 41"<br>41"<br>DH 3076  | DH 3676 | DH 4076 | DH 4676 | DH 5076 |
| 8' - 0"                      | 44"<br>44"<br>DH 3080  | DH 3680 | DH 4080 | DH 4680 | DH 5080 |
| 8' - 6"                      | 47"<br>47"<br>DH 3086  | DH 3686 | DH 4086 | DH 4686 | DH 5086 |
| 9' - 0"                      | 50"<br>50"<br>DH 3090  | DH 3690 | DH 4090 | DH 4690 | DH 5090 |

\* Window Dimension equals the Masonry Opening required for one unit.

Standard sizes cost less than specials

LUPTON PAGE 72



**Unattached Hardware**

15. The following hardware shall be shipped unattached and carefully packed to prevent damage until applied for use.

16. Meeting Rail Locks shall have cam action and shall be malleable iron with cold galvanized Lupton No. 70 finish.

17. Pull-Down Handle shall be malleable iron, cold galvanized Lupton No. 70 finish, for attaching to lower rail of top sash.

18. Pull-Down Socket shall be malleable iron, cold galvanized Lupton No. 70 finish, for attaching to upper rail of top sash for pole operation.

**Calking**

*Note: (See page 1.) Calking is not done by Lupton, but when specified, non-staining elastic calking cement is furnished by Lupton at added cost.*

**Erection**

*Note: (See page 1.) Lupton Double Hung Windows (Types E and F) are shipped assembled with the sash raised and wired to the head. The chain is wired tight inside the jamb box, and the sash weights are shipped unattached.*

19. All Lupton Double Hung Windows shall be erected in prepared openings by the window contractor, unless otherwise specified. They shall be set plumb and true, securely fastened in place and properly adjusted before glazing.

*Note: Include in the masonry specification that all masonry openings shall be accurately constructed in accordance with the installation details for Lupton Double Hung Windows, and that all mortar, grouting, pointing, etc., shall be done by the mason contractor after windows have been erected.*

**Painting**

20. All windows shall receive one coat of window manufacturer's standard gray galvanized metal primer in the factory.

*Note: See page 1.*

**Glass and Glazing**

*Note: (See also page 1.) Specify glass and glazing under proper heading elsewhere in specifications.*

(a) Do not specify single thickness glass.

(b) Specify high-grade steel window putty (ordinary wood sash putty must not be used).

(c) Specify that all Lupton Steel Double Hung Windows shall be glazed from the inside; that all glass shall be set in a bed of putty and held by 14 gauge glazing strips attached with low round-head machine screws.

**REQUIREMENTS FOR UNDERWRITERS' LABELS**

- Both Types E and F Windows may be labeled.
- Maximum size of unit is 6 ft. 0 in. wide and 10 ft. 0 in. high.
- Multiple unit openings require mullions anchored at head and sill.
- The maximum exposed glass area for a single light is 720 sq. in., with a maximum horizontal dimension of 48 in. and a maximum vertical dimension of 54 in.
- Sash locks must be malleable iron.
- Weather-stripping at head, meeting rail, and sill is optional.

**Note**

When ordering Underwriters' Labeled Windows it is important that the following information be given:

1. Groupings of units in masonry openings. By this is meant the number and size of units in each masonry opening.

2. Detail of head, sill and jamb conditions.

This information is required by the Underwriters before the windows can be labeled.

**GAUGES OF METAL USED IN TYPES E AND F WINDOWS****Frames**

|                                                   | Type E   | Type F   |
|---------------------------------------------------|----------|----------|
| Head .....                                        | 20 Gauge | 16 Gauge |
| Head Cover.....                                   | 20 Gauge | 18 Gauge |
| Jamb Box.....                                     | 20 Gauge | 14 Gauge |
| Removable Jamb                                    |          |          |
| Piece .....                                       | 20 Gauge | 16 Gauge |
| Sill .....                                        | 16 Gauge | 13 Gauge |
| Material—Hot galvanized dull-coated steel sheets. |          |          |

**Sash**

|                                       |                   |
|---------------------------------------|-------------------|
| Sash Members up to                    |                   |
| 4 ft. 0 in. wide..                    | 14 Gauge 14 Gauge |
| Sash Members over                     |                   |
| 4 ft. 0 in. wide..                    | 13 Gauge 13 Gauge |
| Glazing Strips, except bottom rail.   | 14 Gauge 14 Gauge |
| Glazing Strip for bottom rail.....    | 13 Gauge 13 Gauge |
| Material—Cold galvanized strip steel. |                   |

**Parting Strips**

|                                       |                   |
|---------------------------------------|-------------------|
|                                       | 16 Gauge 16 Gauge |
| Material—Cold galvanized strip steel. |                   |

| DOUBLE HUNG WINDOWS<br>TYPES E & F - WITH MUNTINS<br>LISTED - SPECIAL TYPES - IN STANDARD SIZES |                        |          |          |          |          |
|-------------------------------------------------------------------------------------------------|------------------------|----------|----------|----------|----------|
| WINDOW DIMENSION                                                                                | * GLASS SIZE — 15" 15" | 3'-6"    | 4'-0"    | 4'-6"    | 5'-0"    |
| 4'-6"                                                                                           | 25" 25"                | DHM 3046 | DHM 3646 | DHM 4046 | DHM 4646 |
| 5'-0"                                                                                           | 26" 26"                | DHM 3050 | DHM 3650 | DHM 4050 | DHM 4650 |
| 5'-6"                                                                                           | 29" 29"                | DHM 3056 | DHM 3656 | DHM 4056 | DHM 4656 |
| 6'-0"                                                                                           | 32" 32"                | DHM 3060 | DHM 3660 | DHM 4060 | DHM 4660 |
| 6'-6"                                                                                           | 35" 35"                | DHM 3066 | DHM 3666 | DHM 4066 | DHM 4666 |
| 7'-0"                                                                                           | 38" 38"                | DHM 3070 | DHM 3670 | DHM 4070 | DHM 4670 |
| 7'-6"                                                                                           | 41" 41"                | DHM 3076 | DHM 3676 | DHM 4076 | DHM 4676 |
| 8'-0"                                                                                           | 44" 44"                | DHM 3080 | DHM 3680 | DHM 4080 | DHM 4680 |
| 8'-6"                                                                                           | 47" 47"                | DHM 3086 | DHM 3686 | DHM 4086 | DHM 4686 |
| 9'-0"                                                                                           | 50" 50"                | DHM 3090 | DHM 3690 | DHM 4090 | DHM 4690 |

\* Window Dimension equals the Masonry Opening required for one unit.

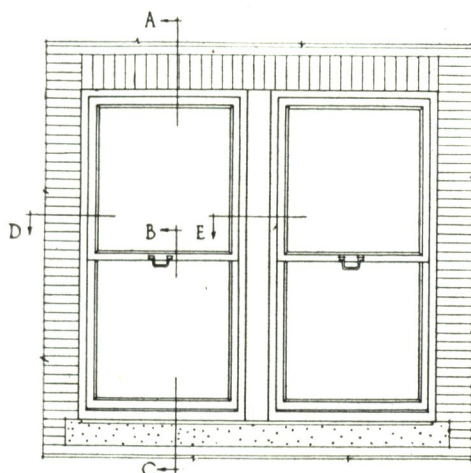
For quick deliveries, use standard sizes

LUPTON PAGE 73



# DOUBLE-HUNG-WINDOWS DETAILS ~ TYPE • E

SCALE • FOR • DETAILS ~ 3" = 1'-0"

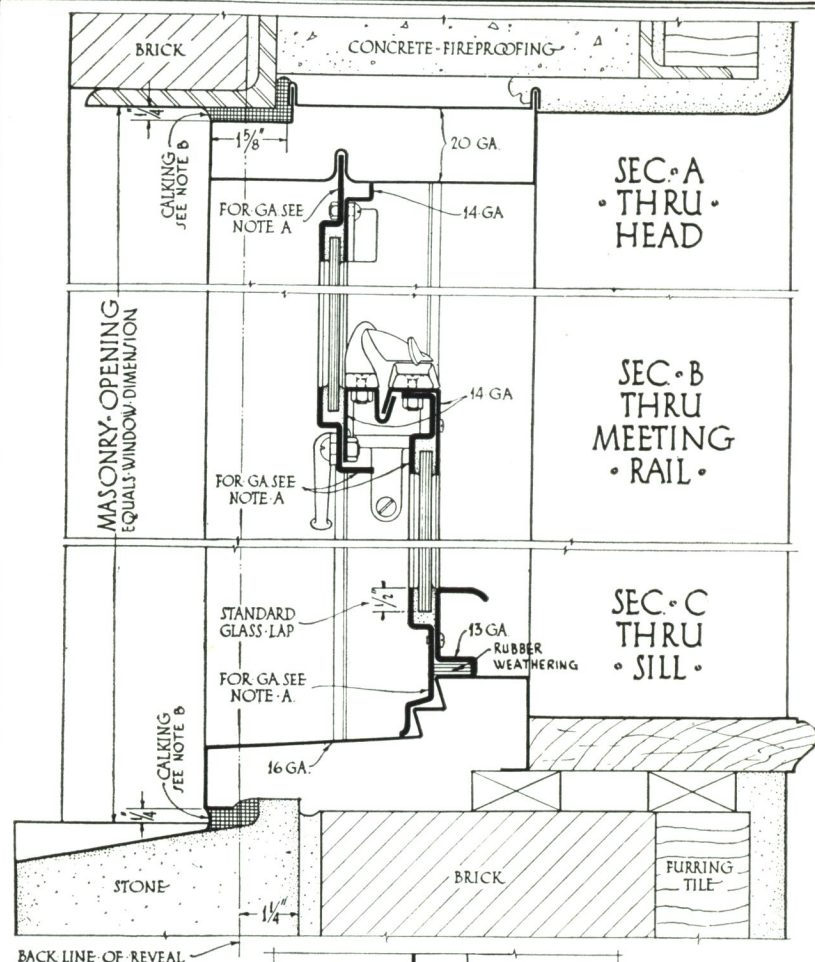


ELEVATION

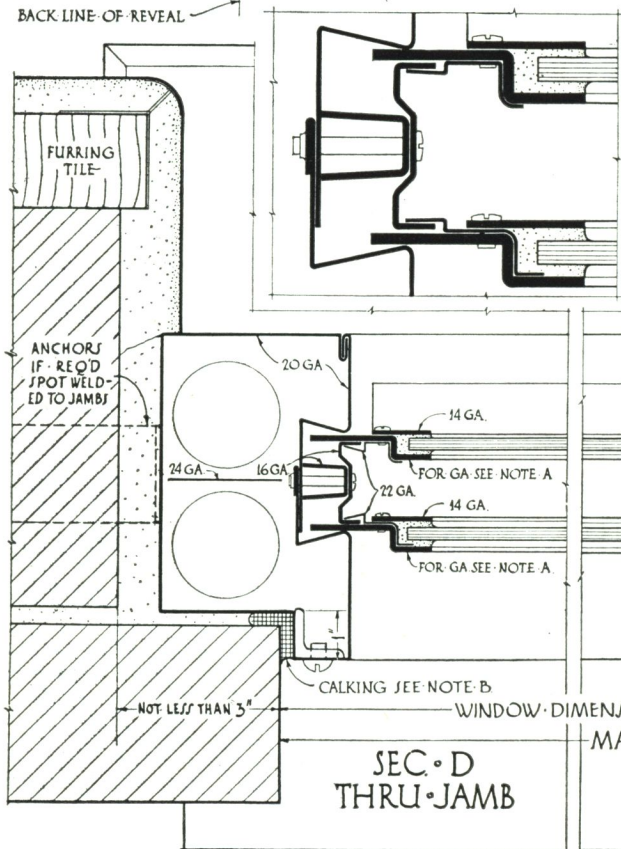
SCALE ~ 1/4" = 1'-0"

## NOTES

- A. Sash rails are 14 Ga. on windows up to and including those 4'-0" wide.  
Sash rails are 13 Ga. on windows over 4'-0" wide.
- B. Extras furnished on both E & F windows at an additional cost
1. Solid-bronze hardware.
  2. Spring-bronze weathering at head and meeting rail.
  3. Solid-bronze sash lift.
  4. 13 Ga. Stool-Extension.
  5. Non-staining, elastic calking-cement at head jambs and sill.
  6. Muntins.
  7. Dickey No. 1 F.L. cleaning anchors.
  8. Columbia shade-roller bracket (nickel-finish).
  9. Underwriters Label-Requirements for Labelled Windows are listed on Lupton page 73



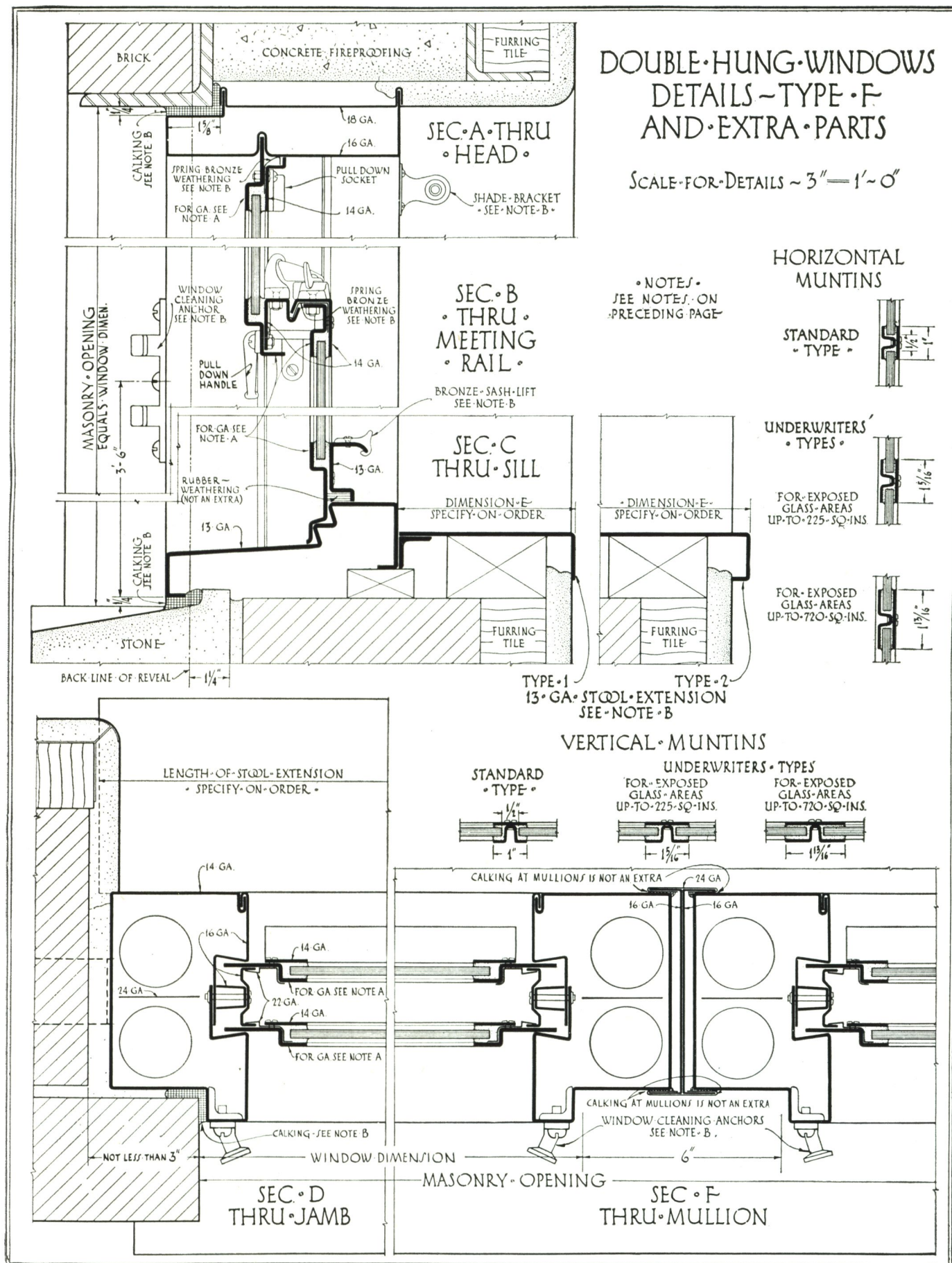
HALF-SIZE-DETAIL  
• SHOWING •  
WEATHERING  
AT • JAMB



WINDOW • DIMENSION  
MASONRY • OPENING

SEC. • E  
THRU • MULLION







# LUPTON COMMERCIAL PROJECTED WINDOWS

for Sidewalls of Industrial Buildings

Commercial Projected Windows in construction and application are essentially the same as Lupton Pivoted Windows. The ventilators, however, are balanced on two steel vent arms, friction shoes holding them open at any reasonable opening without the use of stay bar, etc. See page 79.

Wall opening sizes, glass sizes, wall details, etc., are same as for Pivoted Windows. See pages 77 to 80 and 86 to 91.

**Screens**—Metal screens with 16 mesh bronze wire can be furnished for all standard units. They are applied or removed from the interior. See page 79.

**Shade Brackets**—Windows may also be equipped with shade brackets similar to those shown on page 49.

**Explosion Type Window**—See page 93.

**Aluminum Windows**—Commercial Projected Windows are now available in Aluminum. (See page 93.)

## SPECIFICATION FOR LUPTON COMMERCIAL PROJECTED WINDOWS

### Work Included

1. Furnish and install where shown on drawings Lupton Commercial Projected Windows, manufactured by DAVID LUPTON'S SONS CO., Philadelphia, Pa.

### Materials

2. Sections shall be of specially designed, hot rolled, solid steel.

3. Frame Members shall be angle sections.

4. Muntins shall be special cruciform section 1½ in. deep.

5. Vertical mullions shall be hot-rolled, solid T-Bar section.

*Note: Structural Steel members forming imposts are not furnished by the window manufacturer.*

### Construction

6. All Commercial Projected Windows shall be designed for inside glazing.

7. Both frames and ventilators shall be assembled by tenoned, riveted joints at the corners. Ventilators shall be welded at corners. Continuous, two point flat contact weathering shall be provided between ventilators and frames.

8. Muntin bars shall be continuous from top to bottom, and from side to side, between frame members or ventilator members. They shall be attached to frame members or ventilator members by tenoned, riveted joints and shall be so interlocked as not to decrease their ultimate strength at the intersection.

9. Vertical mullions shall be provided with bolts for frame attachment where two or more windows are placed side by side in the same opening.

10. Steel Clips shall be furnished to attach window to steel structure in types to cover all possible conditions.

11. Sill anchor clips shall be furnished. At least one clip shall be used for each two lights in the width of a unit.

12. Each ventilator shall be accurately pivoted on two Ventilator Arms of solid steel. The connections between the Ventilator Arms and the Window Frames shall be made by steel arm blocks.

13. Each ventilator shall be equipped with two brass friction shoes, sliding vertically in the Ventilator Jambs to guide the Ventilator and prevent rattling. Each shoe shall be equipped with a rust-proofed, flat steel spring attached to the Ventilator to insure constant pressure at the Jambs.

14. **Universal Clips**—An angle clip 1½x1 in., 2 in. long shall be riveted to the ventilator frame.

*Note: The Universal Clip allows any type of Lupton Commercial Projected Window hardware to be attached to the ventilator before or after glazing.*

### Hardware

15. All hardware (listed below) shall be of malleable iron and shall be shipped unattached, carefully packed to prevent damage until applied for use.

16. Provide the following hardware:

For open out ventilators—Ring Type Cam Handle and Pull Down Ring.

For open in ventilators—within reach from floor—Cam Handle with straight grip.

For open in ventilators—beyond reach from floor—Spring catch.

*Note: If screens are wanted specify metal screens with 16 mesh bronze wire furnished by window manufacturer for attachment to windows.*

### Erection (See page 1)

17. All Commercial Projected Windows shall be erected by window contractor in prepared openings, unless otherwise specified.

*Note: Include in the masonry specification that all masonry openings shall be accurately constructed in accordance with the installation details for Lupton Commercial Projected Windows. All grouting, pointing, etc. should be done by the mason contractor after the windows are set.*

18. Lupton Commercial Projected Windows shall be set plumb and true, properly aligned and securely anchored before glazing. All ventilators shall be properly adjusted before glazing.

19. All hardware shall be applied under window manufacturer's directions.

### Painting

20. All windows shall receive one shop coat of window manufacturer's standard, dark gray paint, oven-dried.

*Note: See page 1.*

### Glass and Glazing

21. Furnish standard wire glazing clips, four to each light.

*Note: (See also page 1.) Specify glass and glazing under proper heading elsewhere in specification.*

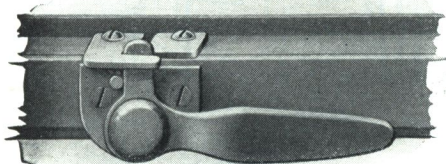
(a) Do not specify single thickness glass.

(b) Specify high-grade steel window putty (ordinary wood sash putty must not be used).

(c) Specify that Lupton Commercial Projected Windows shall be glazed from the inside; the glass set in a bed of putty and held by Lupton standard wire glazing clips, four to each light.

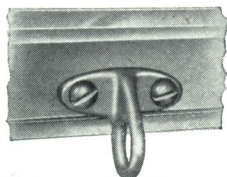
## STANDARD HARDWARE

Malleable iron hardware (illustrated) is furnished unless otherwise specified.



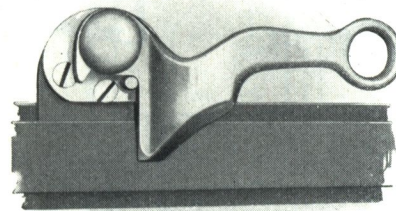
**Cam Handle No. 308**

Used at top of Projected-In-at-Top Ventilators



**Pull-down Ring No. 4881**

Use at top of all Projected-Out-at-Bottom Ventilators



**Ring Type Cam Handle No. 141**

Used at bottom of all Projected-Out-at-Bottom Ventilators. Mounted on universal clip

### Hardware Alternates

*Furnished only when specified.*

For Projected-In-at-Top ventilators beyond reach from

floor—Malleable Iron Spring Catch No. 5, Keeper No. 7. Bronze hardware in standard or alternate types can be furnished at added cost when specified.



## Ordering Commercial Projected Windows

Standard and stock sizes and designs are shown on page 78. Any sizes or designs other than those shown are special and require detailing in engineering department, take more time for delivery and cost more.

Underwriters' labeled windows in standard or stock sizes are *special*. See page 92.

## Information Required

In ordering Standard or Stock Windows, time will be saved by giving us complete information on the following points:

(1) Shipping date desired (on non-stock sizes allow time for assembling).

(2) List windows and openings, giving the following information:

(a) Number of openings.

(b) Sizes of openings (see table at right and page 78 for standard sizes).

(c) Glass size (12x18 in. or 14x20 in.).

(d) Quantity of each type of unit in each opening.

(e) Catalogue numbers of each type of unit in each opening. A method of doing this is illustrated below.

(3) Height of sill from floor. This will tell us whether any change in standard hardware is required.

(4) Whether or not ventilators are to be screened.

(5) Kind of wall fastenings required. This depends on the wall construction. See details on pages 87 to 91. Specify the type of attachments desired for head, jambs and sill. Drawing on page 91 shows number and location of anchors. When you do not specify type of wall fastenings the anchor 2472 or 1739 is furnished at sill only.

(6) Whether or not windows are to bear Underwriters' labels.

(7) Whether or not windows are to be drilled for shade brackets.

## METHOD OF LISTING WINDOWS

| Number of openings                                                   | Size of opening |            | Glass size        | Number of units | Catalog No. | Number of units | Catalog No. |
|----------------------------------------------------------------------|-----------------|------------|-------------------|-----------------|-------------|-----------------|-------------|
|                                                                      | Width           | Height     |                   |                 |             |                 |             |
| (Where there is one opening)                                         | 3'-8"           | 6'-10 3/8" | used in a 14"x20" | 1               | 34161       |                 |             |
| (Where there are two or more openings)                               | 11'-4"          | 6'-10 3/8" | 14"x20"           | 3               | 34161       |                 |             |
| (Where there are two or more openings separately listed each number) | 12'-6 3/4"      | 6'-10 3/8" | 14"x20"           | 2               | 34161       | 1               | 44141       |

†Get this dimension from diagrams of sizes (page 78) in case of a single opening, or from the table of widths on this page in case of multiple openings.

TABLE OF STANDARD OPENING WIDTHS  
Commercial Projected Windows

| 12" x 18" glass    | Total number of units | No. of lights per unit<br>Position of each number indicates position of unit in opening | Total number of lights | Total number of mullions | 14" x 20" glass    |
|--------------------|-----------------------|-----------------------------------------------------------------------------------------|------------------------|--------------------------|--------------------|
| Widths of openings |                       |                                                                                         |                        |                          | Widths of openings |
| 2' 1 5/8"          | 1                     | 2                                                                                       | 2                      | None                     | 2' 5 5/8"          |
| 3' 2"              | 1                     | 3                                                                                       | 3                      | "                        | 3' 8"              |
| 4' 2 3/4"          | 1                     | 4                                                                                       | 4                      | "                        | 4' 10 3/8"         |
| 5' 2 3/4"          | 1                     | 5                                                                                       | 5                      | "                        | 5' 0 3/4"          |
| 6' 6"              | 2                     | 3, 3                                                                                    | 6                      | 1                        | 6' 6"              |
| 8' 4 1/2"          | 2                     | 4, 4                                                                                    | 8                      | 1                        | 8' 10 3/4"         |
| 9' 10"             | 3                     | 3, 3, 3                                                                                 | 9                      | 2                        | 11' 4"             |
| 10' 7 1/2"         | 2                     | 5, 5                                                                                    | 10                     | 1                        | 12' 3 1/2"         |
| 10' 10 3/8"        | 3                     | 3, 4, 3                                                                                 | 10                     | 2                        | 12' 6 3/8"         |
| 11' 10 3/8"        | 3                     | 3, 5, 3                                                                                 | 11                     | 2                        | 13' 8 3/4"         |
| 11' 10 3/8"        | 3                     | 4, 3, 4                                                                                 | 11                     | 2                        | 13' 8 3/4"         |
| 12' 11 1/8"        | 3                     | 4, 4, 4                                                                                 | 12                     | 2                        | 14' 11 1/8"        |
| 13' 2"             | 4                     | 3, 3, 3, 3                                                                              | 12                     | 3                        | 15' 2"             |
| 13' 11 1/2"        | 3                     | 4, 5, 4                                                                                 | 13                     | 2                        | 16' 1 1/2"         |
| 13' 11 1/2"        | 3                     | 5, 3, 5                                                                                 | 13                     | 2                        | 16' 1 1/2"         |
| 14' 11 1/2"        | 3                     | 5, 4, 5                                                                                 | 14                     | 2                        | 17' 3 3/8"         |
| 15' 2 3/4"         | 4                     | 3, 4, 4, 3                                                                              | 14                     | 3                        | 17' 6 3/4"         |
| 16' 0 1/4"         | 3                     | 5, 5, 5                                                                                 | 15                     | 2                        | 18' 6 1/4"         |
| 17' 3 1/2"         | 4                     | 4, 4, 4, 4                                                                              | 16                     | 3                        | 19' 11 1/2"        |
| 18' 6 3/4"         | 5                     | 3, 3, 5, 3, 3                                                                           | 17                     | 4                        | 21' 4 3/4"         |
| 19' 4 1/4"         | 4                     | 4, 5, 5, 4                                                                              | 18                     | 3                        | 22' 4 1/4"         |
| 20' 7 1/2"         | 5                     | 5, 3, 3, 3, 5                                                                           | 19                     | 4                        | 23' 9 1/2"         |
| 21' 5"             | 4                     | 5, 5, 5, 5                                                                              | 20                     | 3                        | 24' 9"             |
| 21' 7 7/8"         | 5                     | 4, 4, 4, 4, 4                                                                           | 20                     | 4                        | 24' 11 7/8"        |
| 22' 8 1/4"         | 5                     | 4, 4, 5, 4, 4                                                                           | 21                     | 4                        | 26' 2 1/4"         |
| 22' 8 1/4"         | 5                     | 3, 5, 5, 5, 3                                                                           | 21                     | 4                        | 26' 2 1/4"         |
| 23' 8 5/8"         | 5                     | 5, 4, 4, 4, 5                                                                           | 22                     | 4                        | 27' 4 5/8"         |
| 23' 11 1/2"        | 6                     | 3, 4, 4, 4, 4, 3                                                                        | 22                     | 5                        | 27' 7 1/2"         |
| 24' 9"             | 5                     | 4, 5, 5, 5, 4                                                                           | 23                     | 4                        | 28' 7"             |
| 26' 0 1/4"         | 6                     | 4, 4, 4, 4, 4, 4                                                                        | 24                     | 5                        | 30' 0 1/4"         |
| 26' 9 3/4"         | 5                     | 5, 5, 5, 5, 5                                                                           | 25                     | 4                        | 30' 11 3/4"        |
| 28' 1"             | 6                     | 5, 4, 4, 4, 4, 5                                                                        | 26                     | 5                        | 32' 5"             |
| 28' 1"             | 6                     | 3, 5, 5, 5, 5, 3                                                                        | 26                     | 5                        | 32' 5"             |
| 29' 4 1/4"         | 7                     | 3, 3, 5, 5, 5, 3, 3                                                                     | 27                     | 6                        | 33' 10 1/4"        |
| 30' 1 3/4"         | 6                     | 4, 5, 5, 5, 5, 4                                                                        | 28                     | 5                        | 34' 9 3/4"         |
| 31' 5"             | 7                     | 3, 5, 5, 3, 5, 5, 3                                                                     | 29                     | 6                        | 36' 3"             |

## HEIGHTS OF OPENINGS

| 12" x 18" glass |                    | 14" x 20" glass |                    |
|-----------------|--------------------|-----------------|--------------------|
| Lights high     | Height of openings | Lights high     | Height of openings |
| 1               | 1' 7 1/4"          | 1               | 1' 9 1/4"          |
| 2               | 3' 1 5/8"          | 2               | 3' 5 5/8"          |
| 3               | 4' 8"              | 3               | 5' 2"              |
| 4               | 6' 2 3/8"          | 4               | 6' 10 3/8"         |
| 5               | 7' 8 3/4"          | 5               | 8' 6 3/4"          |
| 6               | 9' 3 1/8"          | 6               | 10' 3 1/8"         |
| 7               | 10' 9 1/2"         | 7               | 11' 11 1/2"        |

ALL DIMENSIONS ARE MEASURED TO WINDOW DIMENSION POINTS AS SHOWN ON DETAILS AT LEFT.

NOTE: SEMICIRCULAR UNITS J-74 & J-84 ARE USED OVER COMBINATIONS OF SQUARE HEAD UNITS SHOWN ABOVE BY DASH LINES.

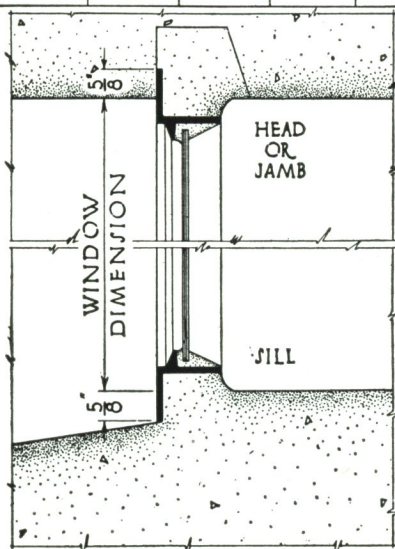
IMPOST TYPE 1  
FOR USE WITH J-74 & J-84.



## WINDOW • DIMENSION • WIDTH

WINDOW • DIMENSION • HEIGHT

| No. OF LIGHTS | 2                    |             | 3                                                                                                                        |                                                                                                             | 4                        |                           | 5                         |                           |                           |                          |
|---------------|----------------------|-------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------------------|---------------------------|---------------------------|---------------------------|---------------------------|--------------------------|
|               | 12" x 18" GLASS<br>↓ | 2'-1 5/8"   | 14" x 20" GLASS<br>↓                                                                                                     | 2'-5 5/8"                                                                                                   | 3'-2"<br>3'-8"           | 4'-2 3/8"<br>4'-10 3/8"   | 5'-2 3/4"<br>6'-0 3/4"    |                           |                           |                          |
| 2             | 3'-1 5/8"            | 3'-5 5/8"   | • NOTE •<br>EXPOSED GLASS AREA<br>32160 IN. SQUARE FEET<br>7.54 → FOR 12" x 18" GLASS →<br>10.03 → FOR 14" x 20" GLASS → |                                                                                                             |                          | 42140<br>10.53<br>13.90   | 52160<br>13.18<br>17.40   | CATALOG • NUMBER          |                           |                          |
| 3             | 4'-8"                | 5'-2"       | 23141<br>7.70<br>10.20                                                                                                   | 33161<br>11.76<br>15.55                                                                                     | 43141<br>16.18<br>21.30  | 53161<br>20.20<br>26.60   |                           |                           |                           |                          |
| 4             | 6'-2 3/8"            | 6'-10 3/8"  | 34161<br>16.03<br>21.10                                                                                                  | 3423602<br>15.33<br>20.30                                                                                   | 44141<br>21.80<br>28.70  | 4422402<br>21.30<br>28.00 | 54161<br>27.28<br>35.85   | 5423602<br>26.60<br>35.00 |                           |                          |
| 5             | 7'-8 3/4"            | 8'-6 3/4"   | 35161<br>20.25<br>26.60                                                                                                  | 35162<br>19.55<br>25.80                                                                                     | 45141<br>27.45<br>36.00  | 4522402<br>26.93<br>35.40 | 55161<br>34.35<br>45.10   | 55162<br>33.60<br>44.25   |                           |                          |
| 6             | 9'-3 1/8"            | 10'-3 1/8"  | 36161<br>24.50<br>32.20                                                                                                  | 3623603<br>23.80<br>31.40                                                                                   | 362614<br>23.55<br>31.10 | 46141<br>33.07<br>43.40   | 4622403<br>32.60<br>42.80 | 56161<br>41.40<br>54.30   | 5623603<br>40.70<br>53.50 | 562614<br>40.50<br>53.25 |
| 7             | 10'-9 1/2"           | 11'-11 1/2" | 372614<br>27.80<br>36.60                                                                                                 | Broken lines indicate swing<br>of vents thus —<br>Projected out at Bottom<br>Projected in at top<br>• KEY • |                          |                           | 572614<br>47.50<br>62.40  |                           |                           |                          |



Shaded Units are dealer stock windows.  
**Dimensions**—The window dimension of a unit is the same as the masonry or structural opening required for that unit. See sketch at left for measure points.

**Mullions**—Mullion details and dimensions are the same as for Pivoted Windows. See page 86.

**Imposts**—Imposts are the same as for Pivoted Windows. See page 86.

**Glass**—Glass in fixed lights is full 14x20 or 12x18 in. in size. Border lights in ventilators are reduced as shown in diagrams at right to allow 1 in. for weathering.

**Anchoring**—For method of anchoring see pages 86 to 91 incl.

**Note:** Dimensions of units, and the sizes and positions of ventilators must be exactly as shown in the diagrams; otherwise the window is a special. Windows can be listed using the method outlined on page 77. Use 14x20-in. glass in preference to 12x18-in. glass. The four and six-light projected out-at-bottom vents may be replaced by projected in-at-top vents if specified at no added cost, but a longer time must be allowed for delivery.

**Special Glass Sizes**—Window dimensions of units with special size glass are obtained as follows: Add 3/8 in. to glass size for fixed lights (width or height as required), multiply by the number of lights and add 7/8 in.

|          |          |          |          |          |
|----------|----------|----------|----------|----------|
| 12<br>18 | 11<br>17 | 12<br>17 | 11<br>17 | 12<br>18 |
| 12<br>18 | 11<br>17 | 12<br>17 | 11<br>17 | 12<br>18 |
| 12<br>18 | 12<br>18 | 12<br>18 | 12<br>18 | 12<br>18 |
| 12<br>18 | 11<br>16 | 12<br>16 | 11<br>16 | 12<br>18 |

|          |          |          |          |          |
|----------|----------|----------|----------|----------|
| 14<br>20 | 13<br>19 | 14<br>19 | 13<br>19 | 14<br>20 |
| 14<br>20 | 13<br>19 | 14<br>19 | 13<br>19 | 14<br>20 |
| 14<br>20 | 14<br>20 | 14<br>20 | 14<br>20 | 14<br>20 |
| 14<br>20 | 13<br>18 | 14<br>18 | 13<br>18 | 14<br>20 |

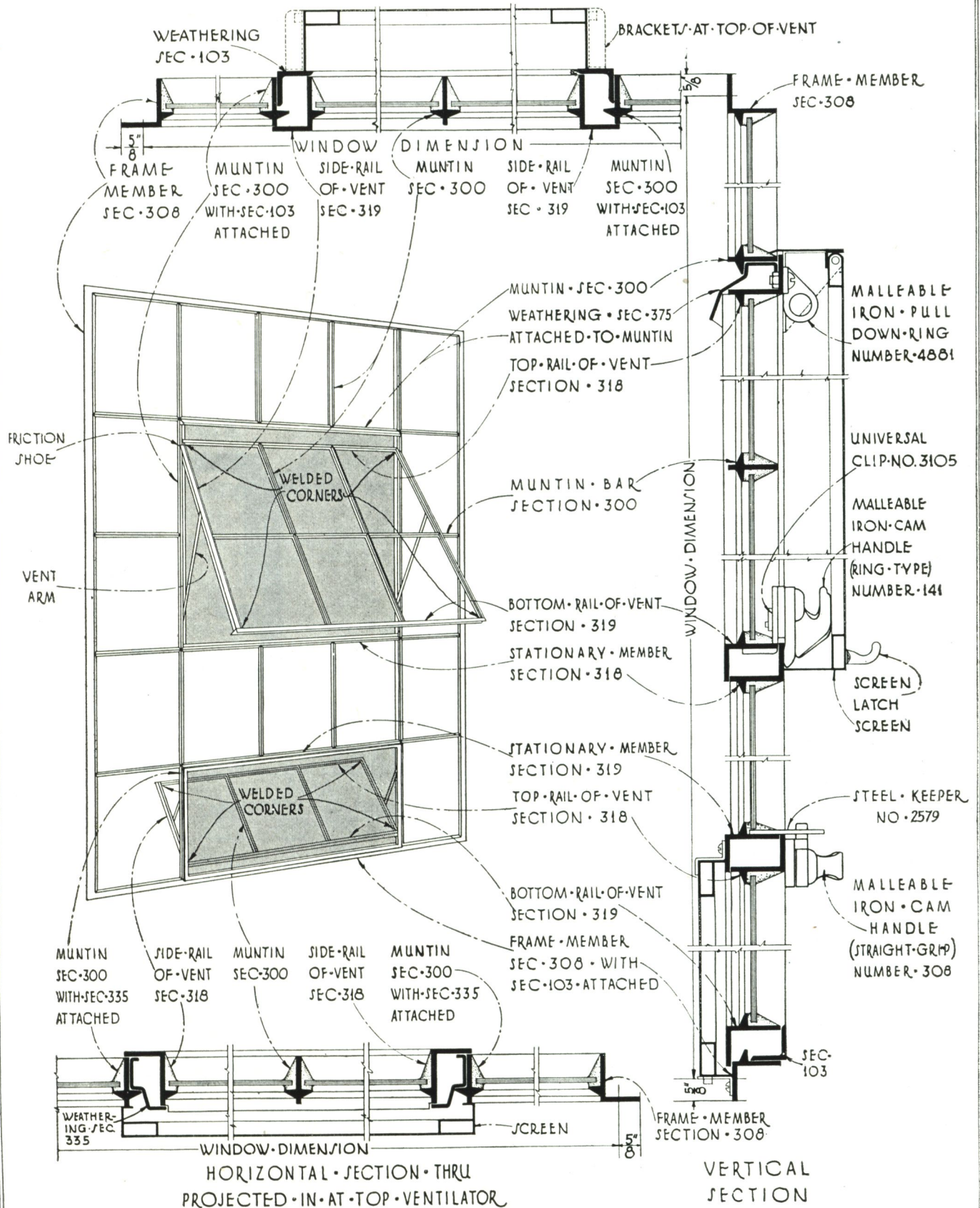
NO  
SCALE

LUPTON • COMMERCIAL • PROJECTED • WINDOWS  
 STANDARD • TYPES • AND • SIZES

PLATE • NO.  
 K-2  
 JULY - 1929



## HORIZONTAL SECTION THRU PROJECTED OUT AT BOTTOM VENTILATOR



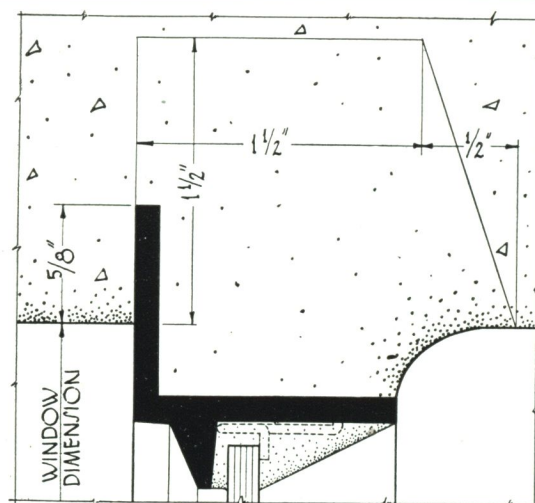
SCALE  
FOR DETAILS  
3" = 1'-0"

LUPTON COMMERCIAL PROJECTED WINDOWS  
DETAILS OF WINDOW CONSTRUCTION

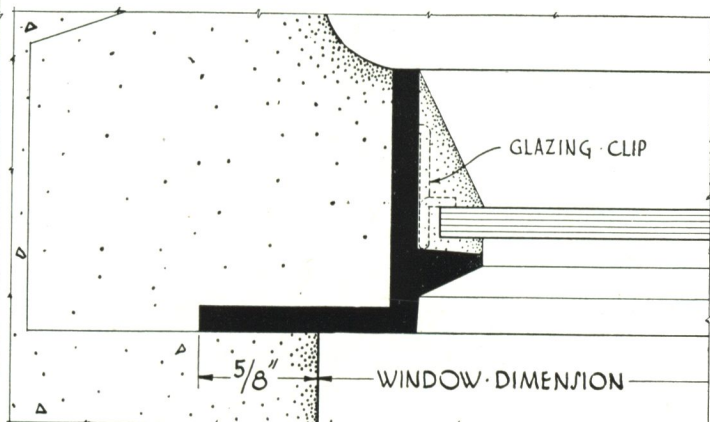
PLATE - NO.  
K-1  
JUNE - 1930



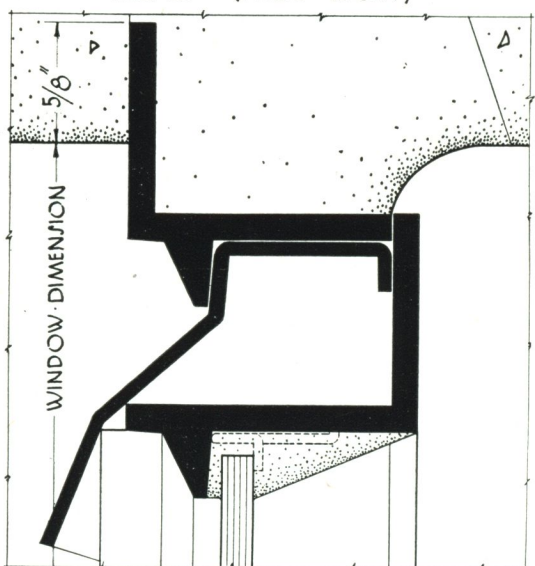
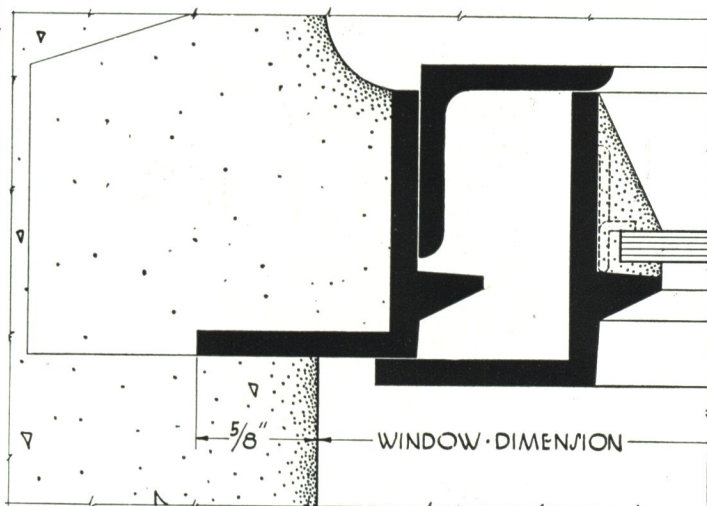
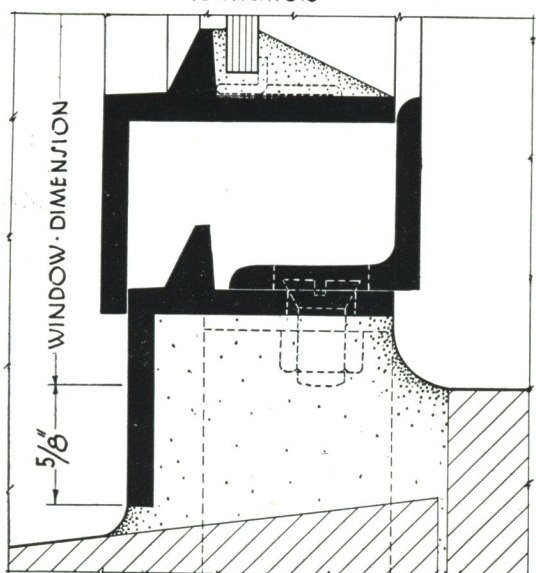
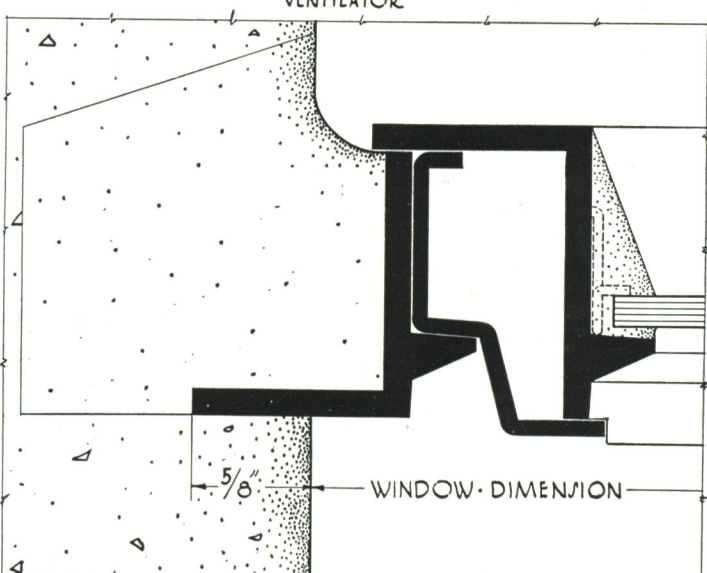
# COMMERCIAL PROJECTED WINDOWS FULL SIZE SECTIONS



HEAD (FIXED LIGHT)



JAMB (FIXED LIGHT)

HEAD  
PROJECT-OUT-AT-BOTTOM  
VENTILATORJAMB  
PROJECT-OUT-AT-BOTTOM  
VENTILATORSILL  
PROJECT-OUT-AT-BOTTOM  
OR - PROJECT-IN-AT-TOP-VENTILATORJAMB  
PROJECT-IN-AT-TOP  
VENTILATOR

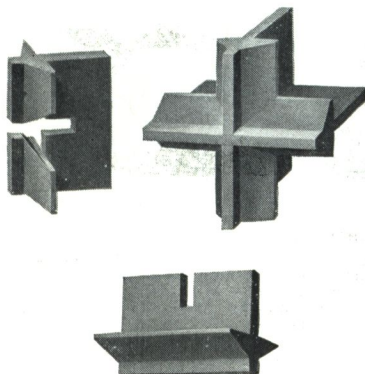


# LUPTON STEEL PIVOTED WINDOWS

For Sidewalls of Industrial Buildings

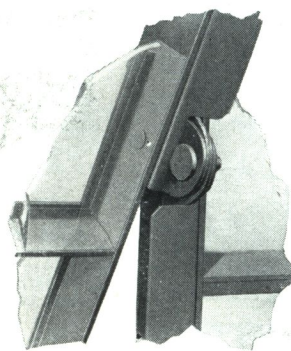
Types, sizes and designs of Lupton Pivoted Windows presented in the following pages represent the standard practices of the steel window industry relative to this product. They have been found to fill all ordinary requirements. Departures from standard practice should be avoided as they increase cost and delay shipments. If, however, it is necessary to use special windows, ventilators should not exceed 4 lights in width or 2 lights in height (5 ft. 0 in. wide x 3 ft. 6 in. high).

**Screens**—Flat metal



**Muntin Joint**

Combines most effective placing of metal with the least possible deformation. The greater the external pressure, the tighter is the lock of the intersecting members. There is less opportunity for moisture to enter and cause corrosion.



**Hinge**

Hinge is integral with the weathering members, and is reinforced with steel plates riveted to the weathering members. There are no spacers, hence the hinge pins cannot sag.

screens with 16-mesh bronze wire can be furnished for all standard units. They are applied or removed from the interior. Screened ventilators are equipped with friction pivots that hold them open without aid of stay bar. Operating hardware is shown on next page.

**Shade Brackets**—Windows may also be equipped with shade brackets similar to those shown on page 49.

**Aluminum Windows**—Pivoted Windows are now available in Aluminum. (See page 93.)

## SPECIFICATION FOR LUPTON STEEL PIVOTED WINDOWS

### Work Included

1. Furnish where shown on drawings Lupton Steel Pivoted Windows, manufactured by DAVID LUPTON'S SONS Co., Philadelphia, Pa.

### Materials

2. Sections shall be specially designed, hot-rolled, solid steel.
3. Frame members shall be angle sections.
4. Muntins shall be special cruciform section 1 3/8 in. deep.
5. Vertical Mullions shall be hot-rolled, solid T-Bar section.

*Note: Structural Steel Members forming Imposts are not furnished by the window manufacturer.*

### Construction

6. All Steel Pivoted Windows shall be designed for inside glazing.
7. Both Frames and Ventilators shall be assembled by tenoned, riveted joints at the corners. Continuous, two-point, flat contact weathering shall be provided between Ventilators and Frames.
8. Muntin Bars shall be continuous from top to bottom, and from side to side, between frame members or ventilator members. They shall be attached to frame members or ventilator members by tenoned, riveted joints and shall be so interlocked as not to decrease their ultimate strength at the intersection.
9. Vertical Mullions shall be provided with bolts for frame attachment where two or more windows are placed side by side in the same opening.
10. Steel Clips shall be furnished to attach window to steel structure in types and lengths to cover all possible conditions.
11. Sill Anchor Clips shall be furnished. At least one clip shall be used for each two lights in the width of a unit.
12. All Ventilators shall be horizontally pivoted. Ventilator pivot shall be integral with weathering to insure permanent alignment. The pivot shall be located 2 in. above center.
- Note: Pivot may be located at a different point if so specified. The window then becomes "special."*
13. **Standard Pivots**—Ventilators shall be held in place at the pivots with 5/8-in. flat head iron rivets and shall operate freely and easily. Or, if friction pivots are wanted, specify.
14. **Friction Pivots**—Pivots shall be friction type and shall hold vents at various degrees of opening without aid of stay bar. Friction shall be furnished by steel and brass plates clamped in a malleable iron yoke by a cadmium plated bolt.

*Note: Friction pivots are always used with screens.*

15. **Universal Clips**—An angle clip 1 1/2 x 1 in., 2 in. long, shall be riveted to the ventilator frame.

*Note: The Universal Clip allows any type of Lupton Pivoted Window hardware to be attached to the ventilator before or after glazing.*

### Hardware

16. All hardware (listed below) shall be shipped unattached, carefully packed to prevent damage until applied for use.
17. **(Standard)**—Provide stay bar and stay bar clip for ventilators within reach from floor, provide spring catch, chain, chain roller guide and chain clip for vents beyond reach from floor.
18. **(Alternate)**—Used with friction pivots.) Provide ventilators with Ring Type Locking Handles. Where vents are beyond reach from floor provide Pull-down Rings in addition to handles.
19. **(Alternate)**—Used with screens.) Provide flat metal screens with 16-mesh bronze wire, an exterior screen above the pivot and an interior screen below the pivot. Provide locking handles on vents within reach from floor and spring catches on vents beyond reach from floor.

### Mechanical Operators

*Note: Mechanical operators are covered in a separate specification.*

### Erection (See page 1)

20. All Steel Pivoted Windows shall be erected by (state by whom), in prepared openings, unless otherwise specified.
- Note: Include in the masonry specification that all masonry openings shall be accurately constructed in accordance with the installation details for Lupton Steel Pivoted Windows. All grouting, pointing, etc., should be done by the mason contractor after the windows are set.*
21. Windows shall be set plumb and true, properly aligned and securely anchored before glazing. All Ventilators shall be properly adjusted before glazing.
22. All hardware shall be applied under window manufacturer's directions.

### Painting

23. All windows shall receive one shop coat of window manufacturer's standard, dark gray paint, oven-dried.

*Note: See page 1.*

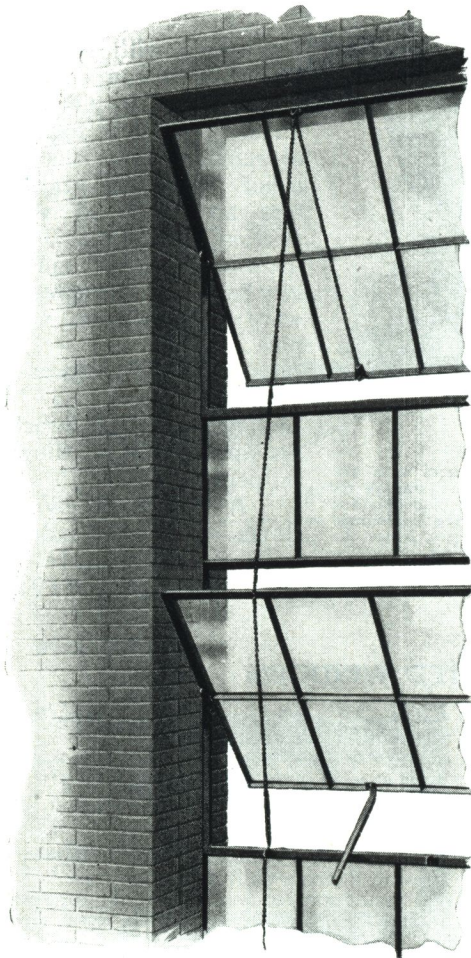
### Glass and Glazing

24. Furnish standard wire glazing clips, four to each light.
- Note: (See also page 1.) Specify glass and glazing under proper heading elsewhere in specifications.*
  - (a) Do not specify single thickness glass.
  - (b) Specify high grade steel window putty (ordinary wood sash putty must not be used).
  - (c) Specify that Lupton Steel Pivoted Windows shall be glazed from the inside, the glass set in a bed of putty, and held by Lupton Standard Wire Glazing Clips.

Use standard sizes for quicker deliveries—lower costs

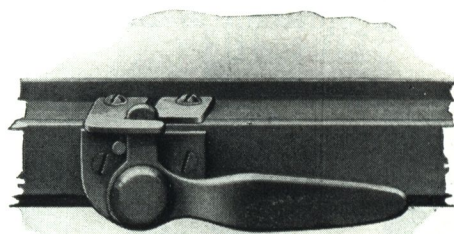


## HARDWARE FOR LUPTON STEEL PIVOTED WINDOWS



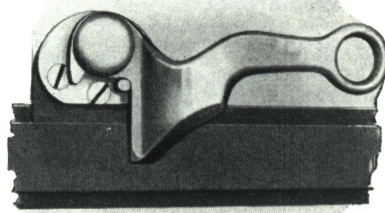
**View Showing Two Ventilators in a Unit, One Above the Other**

The lower ventilator is operated by Lupton Stay Bar, the upper by Spring Catch and Chain.



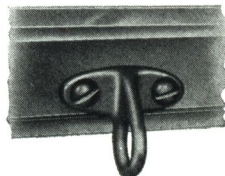
**Locking Handle No. 308**

Used at top of ventilators equipped with screens when top of vent is within reach from floor. When beyond reach from floor a spring catch is used instead. Malleable iron painted. Polished, solid bronze, at added cost, when specified.



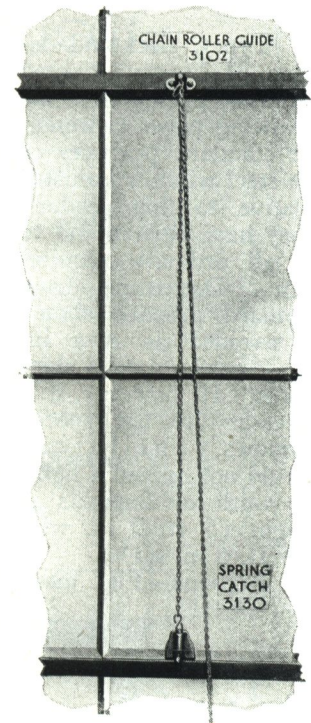
**Ring Type Locking Handle No. 141**

Used instead of stay bar on ventilators equipped with friction pivots. Malleable iron painted. Polished, solid bronze at added cost when specified.



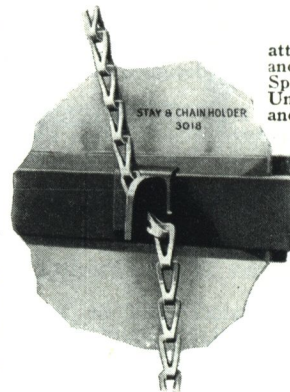
**Pull Down Ring No. 4881**

Used with locking handle No. 141 on ventilators equipped with friction hinges when handle is beyond reach from floor. Mounted on top rail of ventilator. Malleable iron painted. Polished, solid bronze, at added cost, when specified.



**A Ventilator Operated by Lupton Spring Catch and Chain**

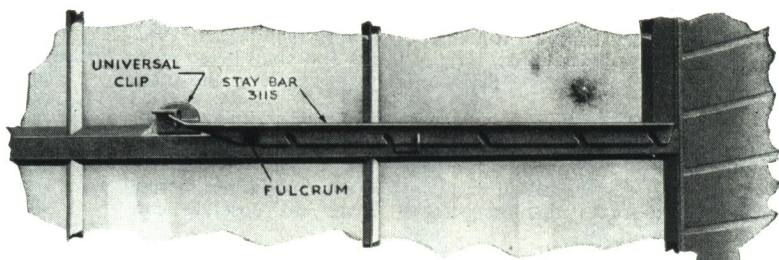
View shows Chain Roller Guide attached to top members of ventilator and Spring Catch to bottom member. Spring Catch is mounted on the Universal Clip. Both Spring Catch and Guide are of steel.



At left:

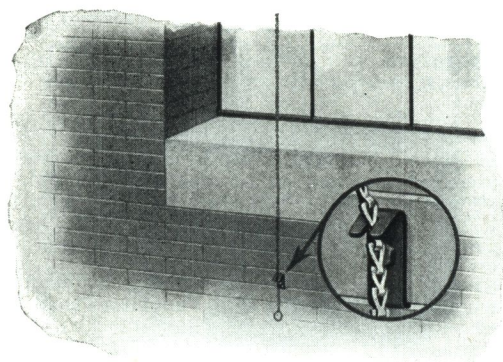
**Clip No. 3018**

Steel Clip holds either Stay Bar or Chain.



**Lupton Stay Bar in Close Position Mounted on the Universal Clip**

Near its attached end the steel angle Stay Bar is pressed out to form a fulcrum. The fulcrum causes the ventilator to be drawn up tightly against the frame and locked when the Stay Bar is inserted in the clip provided to hold it. Five notches are provided for holding the ventilator at various degrees of opening.



**Wall Clip No. 2365**

Steel Clip used as alternate to Stay and Chain Holder No. 3018.

**Standard Hardware—Where Sill Height Is Not Specified**—We supply Lupton Stay Bars with all single ventilators. A stay bar is furnished with the lower ventilator of a unit having two ventilators. A spring catch and 12 ft. of chain are furnished for the upper ventilator.

**Where Sill Height Is Specified**—We furnish spring catch and chain operation only for ventilators whose bottom edges are more than 6 ft. above the floor. Where necessary, a special clip No. 2365 is furnished to fasten the chain to the wall below the window.

**Alternate Hardware**—Any desired change from the

Standard hardware as described above must be noted on the order.

**Friction Pivots**—These pivots hold ventilators open without stay bars, chain or adjusters. Operation of ventilator is by means of the locking handle shown in illustration. Where ventilator is beyond reach a pull-down ring is used in addition to handle for pole operation. Any pivoted ventilator can be equipped with friction pivots (at added cost) when specified.

**Window Cleaners' Anchors**—Where window cleaners' anchors are ordered, Dickey Safety Anchors will be furnished, unless others are specified.



## Ordering Pivoted Windows

Standard and stock sizes and designs are shown on page 84. Any sizes or designs other than those shown are special and require detailing in engineering department, take more time for delivery and cost more.

Underwriters' labeled Pivoted Windows in standard or stock sizes are not special.

## Information Required

In ordering Standard or Stock Windows, time will be saved by giving us complete information on the following points:

(1) Shipping date desired (on non-stock sizes allow time for assembling).

(2) List windows and openings, giving the following information:

(a) Number of openings.

(b) Sizes or openings (see table at right and page 84 for standard sizes).

(c) Glass size (12x18 in. or 14x20 in.).

(d) Quantity of each type of unit in each opening.

(e) Catalogue numbers of each type of unit in each opening. A method of doing this is illustrated below.

(3) Height of sill from floor. This will tell us whether any change in standard hardware is required.

(4) Whether or not ventilators are to be screened.

(5) Kind of wall fastenings required. This depends on the wall construction. See details on pages 87 to 91. Specify the type of attachments desired for head, jams and sill. Drawing on page 91 shows number and location of anchors. When you do not specify type of wall fastenings the anchor 2472 or 1739 is furnished at sill only.

(6) Whether or not windows are to bear Underwriters' labels.

(7) Whether or not shade brackets are wanted.

## METHOD OF LISTING WINDOWS

| Number of openings   | Size of opening |                  | Glass size                | Number of units       | Catalog No. | Number of units | Catalog No. |
|----------------------|-----------------|------------------|---------------------------|-----------------------|-------------|-----------------|-------------|
|                      | Width           | Height           |                           |                       |             |                 |             |
| (Where there is on 2 | 3'-8"           | ly one unit      | t used in a 14"x20"       | n opening)            | 34161       |                 |             |
| (Where there are 3   | 11'-4"          | two or more      | units of the same         | catalog number in one |             |                 |             |
| (Where there are 2   | 12'-6 3/8"      | two or more      | units and d more than one | catalog number        |             |                 |             |
|                      | 12'-6 3/8"      | separately thus: | 14"x20"                   | 2                     | 34161       | 1               | 44181       |

†Get this dimension from diagrams of sizes (page 84) in case of single opening, or from the table of widths on this page in case of multiple openings.

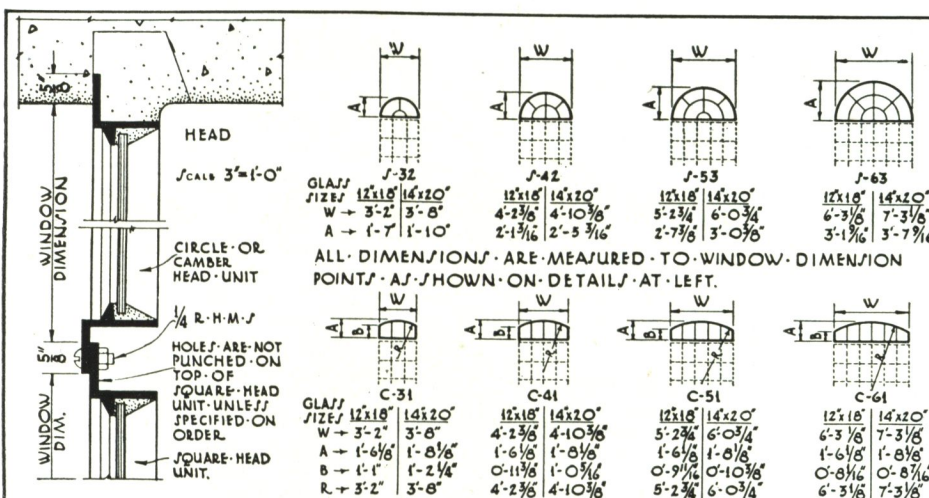
TABLE OF STANDARD OPENING WIDTHS

## Pivoted Windows

| 12" x 18" glass    | Total number of units | No. of lights per unit Position of each number indicates position of unit in opening | Total number of lights | Total number of mullions | 14" x 20" glass    |
|--------------------|-----------------------|--------------------------------------------------------------------------------------|------------------------|--------------------------|--------------------|
| Widths of openings |                       |                                                                                      |                        |                          | Widths of openings |
| 2' 1 1/8"          | 1                     | 2                                                                                    | 2                      | None                     | 2' 5 5/8"          |
| 3' 2"              | 1                     | 3                                                                                    | 3                      | "                        | 3' 8"              |
| 4' 2 3/8"          | 1                     | 4                                                                                    | 4                      | "                        | 4' 10 3/8"         |
| 5' 2 3/4"          | 1                     | 5                                                                                    | 5                      | "                        | 5' 0 3/4"          |
| 6' 3 1/8"          | 1                     | 6                                                                                    | 6                      | "                        | 6' 3 1/8"          |
| 6' 6"              | 2                     | 3, 3                                                                                 | 6                      | 1                        | 7' 0"              |
| 8' 6 3/4"          | 2                     | 4, 4                                                                                 | 8                      | 1                        | 9' 0"              |
| 9' 10"             | 3                     | 3, 3, 3                                                                              | 9                      | 2                        | 10 3/4"            |
| 10' 7 1/2"         | 2                     | 5, 5                                                                                 | 10                     | 1                        | 11' 4"             |
| 10' 10 3/8"        | 3                     | 3, 4, 3                                                                              | 10                     | 2                        | 12' 3 1/2"         |
| 11' 10 3/4"        | 3                     | 3, 5, 3                                                                              | 11                     | 2                        | 12' 6 3/8"         |
| 11' 10 3/4"        | 3                     | 4, 3, 4                                                                              | 11                     | 2                        | 13' 8 3/4"         |
| 12' 8 1/4"         | 2                     | 6, 6                                                                                 | 12                     | 1                        | 13' 8 3/4"         |
| 12' 11 1/8"        | 3                     | 4, 4, 4                                                                              | 12                     | 2                        | 14' 8 1/4"         |
| 13' 11 1/8"        | 3                     | 4, 5, 4                                                                              | 13                     | 2                        | 14' 11 1/8"        |
| 13' 11 1/8"        | 3                     | 5, 3, 5                                                                              | 13                     | 2                        | 16' 1 1/2"         |
| 14' 11 7/8"        | 3                     | 4, 6, 4                                                                              | 14                     | 2                        | 16' 1 1/2"         |
| 14' 11 7/8"        | 3                     | 5, 4, 5                                                                              | 14                     | 2                        | 17' 3 7/8"         |
| 15' 2 3/4"         | 4                     | 3, 4, 4, 3                                                                           | 14                     | 3                        | 17' 3 7/8"         |
| 16' 0 1/4"         | 3                     | 5, 5, 5                                                                              | 15                     | 2                        | 18' 6 1/4"         |
| 16' 0 1/4"         | 3                     | 6, 3, 6                                                                              | 15                     | 2                        | 18' 6 1/4"         |
| 17' 0 5/8"         | 3                     | 5, 6, 5                                                                              | 16                     | 2                        | 19' 8 5/8"         |
| 17' 0 5/8"         | 3                     | 6, 4, 6                                                                              | 16                     | 2                        | 19' 8 5/8"         |
| 17' 3 1/2"         | 4                     | 4, 4, 4, 4                                                                           | 16                     | 3                        | 19' 11 1/2"        |
| 18' 1"             | 3                     | 6, 5, 6                                                                              | 17                     | 2                        | 20' 11"            |
| 19' 1 1/8"         | 3                     | 6, 6, 6                                                                              | 18                     | 2                        | 22' 1 1/8"         |
| 19' 4 1/4"         | 4                     | 3, 6, 6, 3                                                                           | 18                     | 3                        | 22' 4 1/4"         |
| 19' 4 1/4"         | 4                     | 4, 5, 5, 4                                                                           | 18                     | 3                        | 23' 4 1/4"         |
| 20' 7 1/2"         | 5                     | 5, 3, 3, 3, 5                                                                        | 19                     | 4                        | 23' 9 1/2"         |
| 21' 5"             | 4                     | 5, 5, 5, 5                                                                           | 20                     | 3                        | 24' 9"             |
| 21' 5"             | 4                     | 4, 6, 6, 4                                                                           | 20                     | 3                        | 24' 9"             |
| 21' 7 7/8"         | 5                     | 4, 4, 4, 4, 4                                                                        | 20                     | 4                        | 24' 11 7/8"        |
| 22' 8 1/4"         | 5                     | 4, 4, 5, 4, 4                                                                        | 21                     | 4                        | 25' 2 1/4"         |
| 22' 8 1/4"         | 5                     | 3, 5, 5, 5, 3                                                                        | 21                     | 4                        | 26' 2 1/4"         |
| 23' 5 3/8"         | 4                     | 5, 6, 6, 5                                                                           | 22                     | 3                        | 27' 1 3/8"         |
| 23' 8 3/8"         | 5                     | 5, 4, 4, 4, 5                                                                        | 22                     | 4                        | 27' 1 3/8"         |
| 23' 11 1/8"        | 6                     | 3, 4, 4, 4, 4, 3                                                                     | 22                     | 5                        | 27' 4 5/8"         |
| 24' 9"             | 5                     | 4, 5, 5, 5, 4                                                                        | 23                     | 4                        | 27' 7 1/2"         |
| 25' 6 1/8"         | 4                     | 6, 6, 6, 6                                                                           | 24                     | 3                        | 28' 6 1/8"         |
| 25' 9 3/8"         | 5                     | 3, 6, 6, 6, 3                                                                        | 24                     | 4                        | 29' 9 3/8"         |
| 26' 0 1/4"         | 6                     | 4, 4, 4, 4, 4, 4                                                                     | 24                     | 5                        | 30' 0 1/4"         |
| 26' 9 3/8"         | 5                     | 5, 5, 5, 5, 5                                                                        | 25                     | 4                        | 30' 0 1/4"         |
| 27' 10 1/8"        | 5                     | 5, 5, 6, 5, 5                                                                        | 26                     | 4                        | 32' 2 1/8"         |
| 28' 1"             | 6                     | 5, 4, 4, 4, 4, 5                                                                     | 26                     | 5                        | 32' 5"             |
| 28' 1"             | 6                     | 3, 5, 5, 5, 5, 3                                                                     | 26                     | 5                        | 32' 5"             |

## HEIGHTS OF OPENINGS

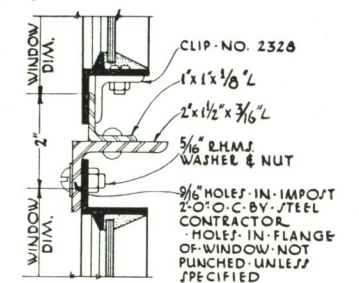
| 12" x 18" glass |                    | 14" x 20" glass |                    |
|-----------------|--------------------|-----------------|--------------------|
| Lights high     | Height of openings | Lights high     | Height of openings |
| 1               | 1' 7 1/4"          | 1               | 1' 9 1/4"          |
| 2               | 3' 1 1/8"          | 2               | 3' 5 3/8"          |
| 3               | 4' 8"              | 3               | 5' 2"              |
| 4               | 6' 2 3/8"          | 4               | 6' 10 3/8"         |
| 5               | 7' 8 3/4"          | 5               | 8' 6 3/8"          |
| 6               | 9' 3 1/8"          | 6               | 10' 3 1/8"         |
| 7               | 10' 9 1/2"         | 7               | 11' 11 1/2"        |



CAMBER OR CIRCLE HEAD UNITS NOT OVER 6 LIGHTS WIDE ARE BOLTED DIRECTLY TO SQUARE HEAD UNIT BELOW.

STANDARD SIZES AND ATTACHMENT DETAILS FOR STANDARD CAMBER AND CIRCLE HEAD UNITS USED WITH PIVOTED WINDOWS.

NOTE—SEMICIRCULAR UNITS J-74 & J-84 ARE USED OVER COMBINATIONS OF SQUARE HEAD UNITS SHOWN ABOVE BY DASH LINE.



IMPOST TYPE 1 FOR USE WITH J-74 & J-84



# WINDOW-DIMENSION-WIDTH

| NO. OF LIGHTS   | 2          | 3           | 4         | 5         | 6         |
|-----------------|------------|-------------|-----------|-----------|-----------|
| GLASS           | 12'x18"    | 14'x20"     | 12'x18"   | 14'x20"   | 12'x18"   |
| 2               | 3'-1 5/8"  | 3'-5 5/8"   | 4'-2 3/8" | 5'-2 3/4" | 6'-3 1/8" |
| CATALOG NUMBERS | 32         | 32160       | 42        | 42140     | 42180     |
| 3               | 4'-8"      | 5'-2"       | 43        | 43141     | 43181     |
| 4               | 6'-2 3/8"  | 6'-10 3/8"  | 44        | 44141     | 44181     |
| 5               | 7'-8 3/4"  | 8'-6 3/4"   | 45        | 45141     | 45181     |
| 6               | 9'-3 1/8"  | 10'-3 1/8"  | 46        | 46141     | 46181     |
| 7               | 10'-9 1/2" | 11'-11 1/2" | 47        | 472814    | 472814    |

Diagram illustrating the window unit structure and dimensions. The diagram shows a cross-section of the window unit with labels for 'WINDOW DIMENSION', 'HEAD OR JAMB', and 'SILL'. A note indicates '2x10' for the sill dimension.

Shaded units are dealer stock windows.

**Dimensions**—The window dimension of a unit is the same as the masonry or structural opening required for that unit. See sketch at left for measure points.

**Mullions**—Mullion details and dimensions are the same as for Commercial Projected Windows. See page 86.

**Imposts**—Imposts are the same as for Commercial Projected Windows. See page 86.

**Glass**—Glass in fixed lights is full 14x20 or 12x18 in. in size. Border lights in ventilators are reduced as shown in diagrams at right to allow 1 in. for weathering.

**Anchoring**—For method of anchoring see pages 87 to 91.

*Note: Dimensions of units, and the sizes and positions of ventilators must be exactly as shown in the diagrams; otherwise the window is a special. Windows can be listed using the method outlined on page 83. Use 14x20-in. glass in preference to 12x18-in. glass. The four and six-light projected out-at-bottom vents may be replaced by projected in-at-top vents if specified at no added cost, but a longer time must be allowed for delivery.*

**Special Glass Sizes**—Window dimensions of units with special size glass are obtained as follows: Add 3/8 in. to glass size for fixed lights (width or height as required), multiply by the number of lights and add 7/8 in.

|    |    |    |    |    |
|----|----|----|----|----|
| 12 | 12 | 12 | 12 | 12 |
| 18 | 18 | 18 | 18 | 18 |
| 12 | 12 | 12 | 12 | 12 |
| 18 | 18 | 18 | 18 | 18 |
| 12 | 12 | 12 | 12 | 12 |
| 18 | 18 | 18 | 18 | 18 |

|    |    |    |    |    |
|----|----|----|----|----|
| 14 | 14 | 14 | 14 | 14 |
| 20 | 20 | 20 | 20 | 20 |
| 14 | 14 | 14 | 14 | 14 |
| 20 | 20 | 20 | 20 | 20 |
| 14 | 14 | 14 | 14 | 14 |
| 20 | 20 | 20 | 20 | 20 |

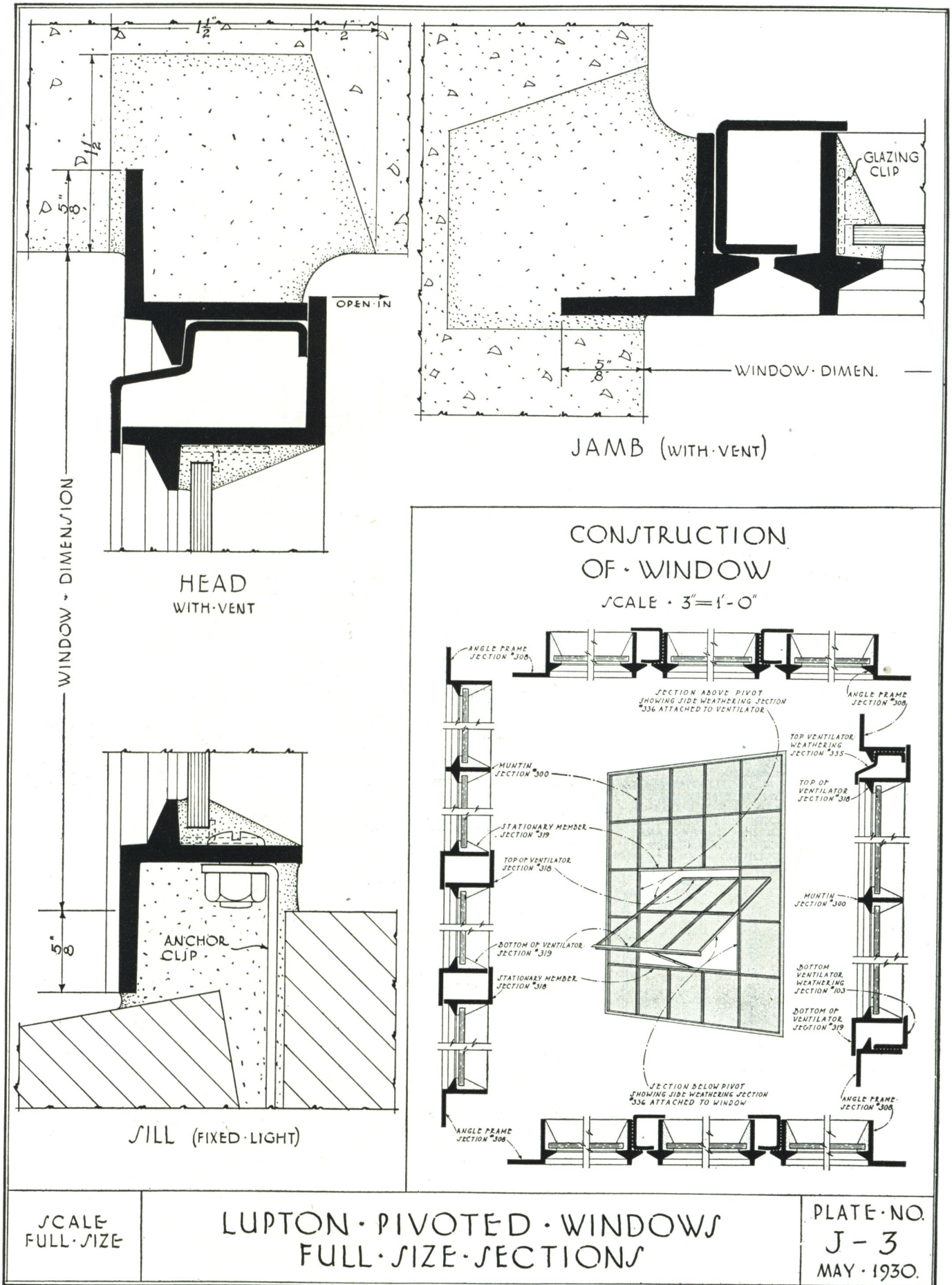
NO  
SCALE

LUPTON-PIVOTED-WINDOWS  
STANDARD-TYPES-AND-SIZES

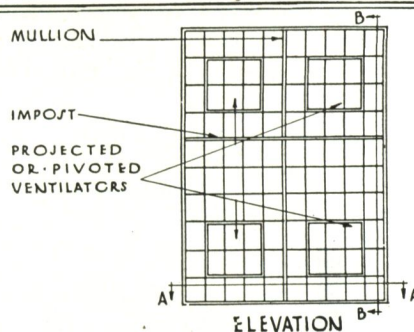
PLATE-NO.  
J-2  
MAY-1930

NO  
SCALELUPTON-PIVOTED-WINDOWS  
STANDARD-TYPES-AND-SIZESPLATE-NO.  
J-2  
MAY-1930







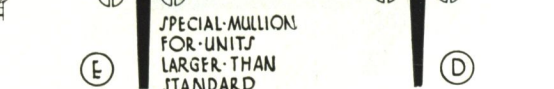
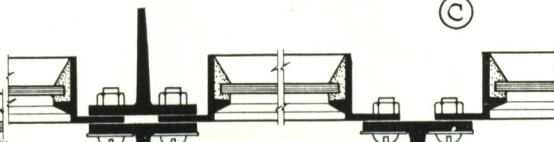
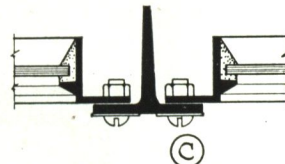


JAMB MULLION JAMB

IN · MULTIPLE · UNIT · OPENINGS — EACH · MULLION · ADDS · 2" TO · THE · SUM · OF · THE · WINDOW · DIMENSIONS

MULLION • DESIGNS

SEE-TABLE-AT-LEFT.

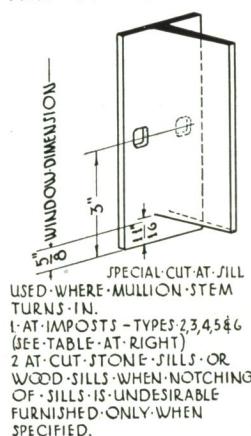


SPECIAL-MILLIONS  
FOR-UNITS  
LARGER-THAN  
STANDARD

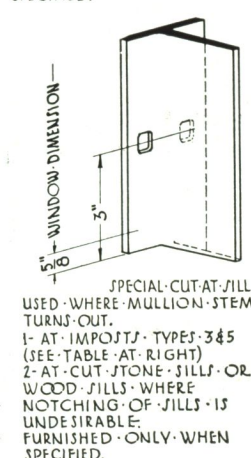
MULLION-CUTS  
STANDARD-AND-SPECIAL



STANDARD END CUT FOR  
MULLIONS  
STEM PROJECTS 1 3/8"  
BEYOND BOTTOM OF  
WINDOW AND IS IMBED-  
DED IN THE SILL. THIS  
TYPE IS ALWAYS FURNISH-  
ED UNLESS OTHERWISE  
SPECIFIED.



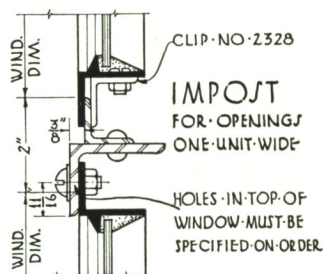
USED WHERE MILLION-STEM  
TURNS-IN.  
1-AT-IMPOSTS-TYPES-2,3,4,5&6  
(SEE-TABLE-AT-RIGHT)  
2-AT-CUT-STONE-SILLS-OR  
WOOD-SILLS-WHEN-NOTCHING  
OF-SILLS-IS-UNDESIRABLE  
FURNISHED-ONLY-WHEN  
SPECIFIED.



SPECIAL CUT-AT-SILL  
 USED WHERE MULLION-STEM  
 TURNS OUT.  
 1- AT IMPOSTS TYPES 3&5  
 (SEE TABLE AT RIGHT)  
 2- AT CUT-TONE SILLS OR  
 WOOD SILLS WHERE  
 NOTCHING OF SILLS IS  
 UNDESIRABLE.  
 FURNISHED ONLY WHEN  
 SPECIFIED.

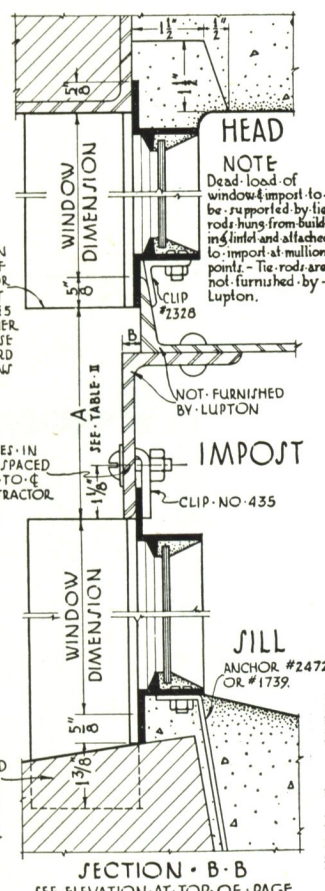
IMPOST - DESIGNS  
SCALE - FOR - DETAILS 3" = 1' - 0"

| TABLE-II                                        |                                                |                                                                    |        |      |                                                |  |
|-------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------|--------|------|------------------------------------------------|--|
| TYPE                                            | 12" x 18"<br>GLASS<br>NO. OF<br>LIGHTS<br>WIDE | DESIGN<br>OF<br>IMPOST                                             | A      | B    | 14" x 20"<br>GLASS<br>NO. OF<br>LIGHTS<br>WIDE |  |
|                                                 | USED FOR SINGLE UNIT OPENINGS - ONLY           |                                                                    |        |      |                                                |  |
| 1                                               | 3 TO 6                                         | TWO ANGLES<br>ONE 25 1/2" x 3 1/8"<br>ONE 1" x 1" x 1/8"           | 2"     | 3/8" | 3 TO 6                                         |  |
| USED FOR BOTH SINGLE AND MULTIPLE UNIT OPENINGS |                                                |                                                                    |        |      |                                                |  |
| 2                                               | 3 TO 9                                         | TWO ANGLES<br>2 1/2" x 2 1/2" x 3/16"                              | 5"     | 3/8" | 3 TO 8                                         |  |
| 3                                               | 10 TO 13                                       | TWO ANGLES<br>2 1/2" x 2 1/2" x 3/16"<br>ONE 6" x 1/4" PLATE<br>OR | 5 1/4" | 3/8" | 9 TO 11                                        |  |
| 4                                               |                                                | ONE 4" CHANNEL<br>ONE ANGLE<br>3 1/2" x 2 1/2" x 1/4"              | 5 1/4" | 1/2" |                                                |  |
| 5                                               | 14 TO 18                                       | TWO ANGLES<br>3" x 3" x 5/16"<br>ONE 6" x 1/4" PLATE<br>OR         | 6 1/8" | 1/2" | 12 TO 16                                       |  |
| 6                                               |                                                | ONE 6" CHANNEL<br>ONE ANGLE<br>4" x 3" x 5/16"                     | 6 1/8" | 1/2" |                                                |  |



IMPOST  
FOR OPENINGS  
ONE UNIT WIDE

HOLES IN TOP OF  
WINDOW MUST BE  
SPECIFIED ON ORDER



**HEAD**  
**NOTE**  
Dead load of window & import to be supported by tie rods hung from building lintel and attached to import at mullion points. - Tie rods are not furnished by Lupton.

MPOST

0-NO-435

SILL  
ANCHOR #2472  
(OR #1739)

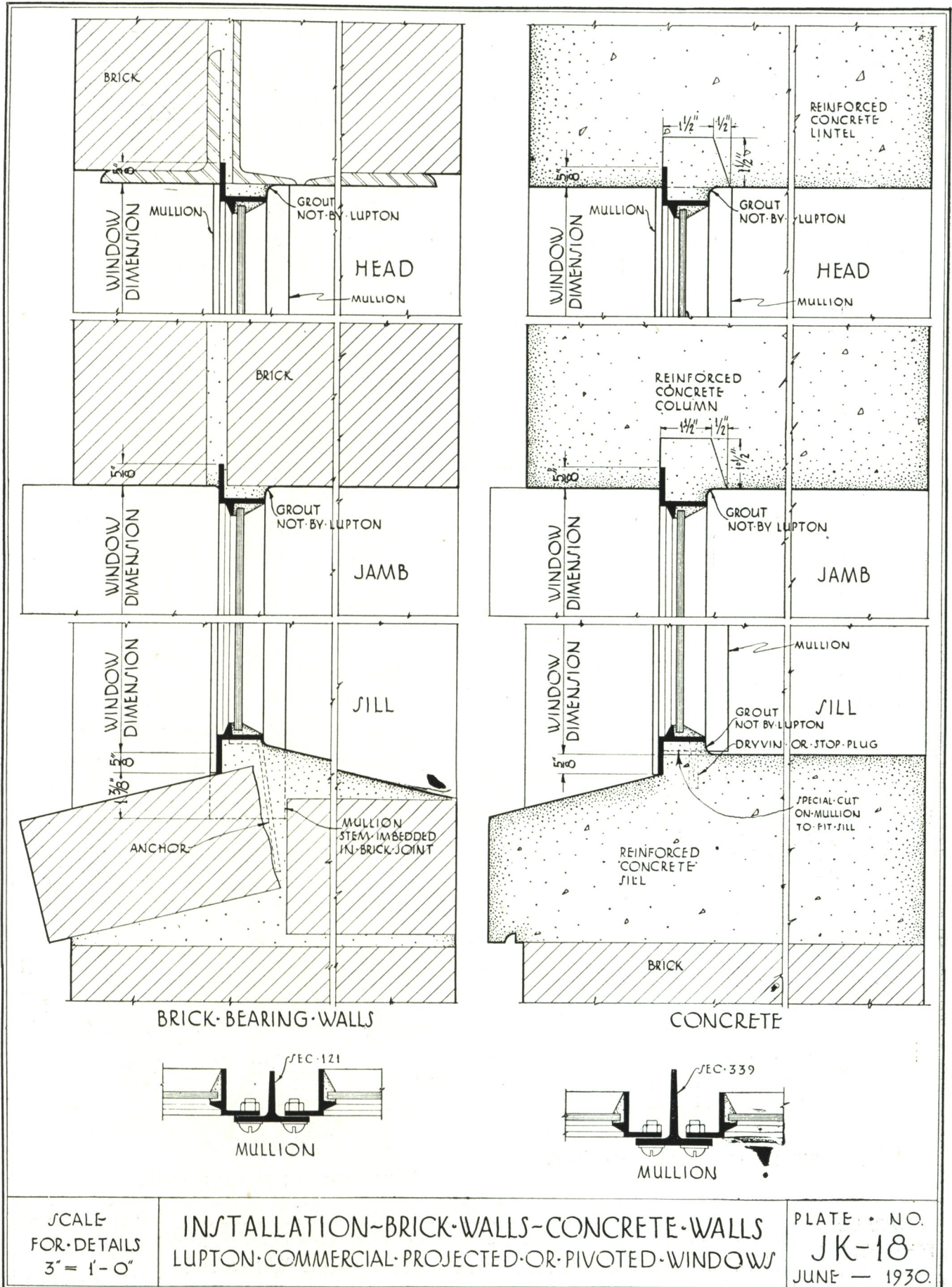
SECTION - B - B  
SEE ELEVATION AT TOP OF PAGE

SCALE  
FOR DETAILS  
3" = 1'-0"

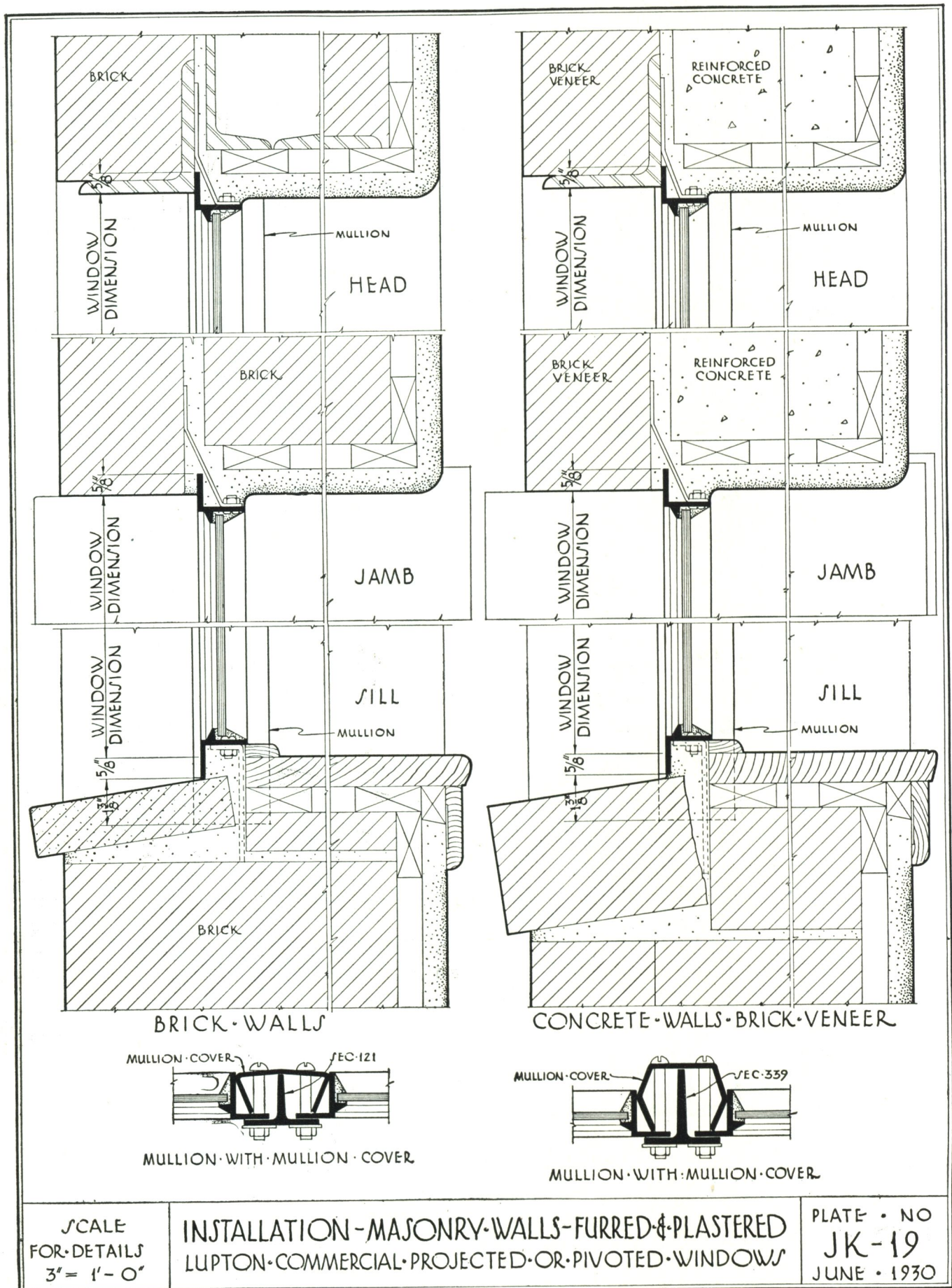
DETAILS OF MULLIONS AND IMPOSTS  
LUPTON COMMERCIAL PROJECTED OR PIVOTED WINDOWS

PLATE NO.  
JK-20  
AUGUST 1930

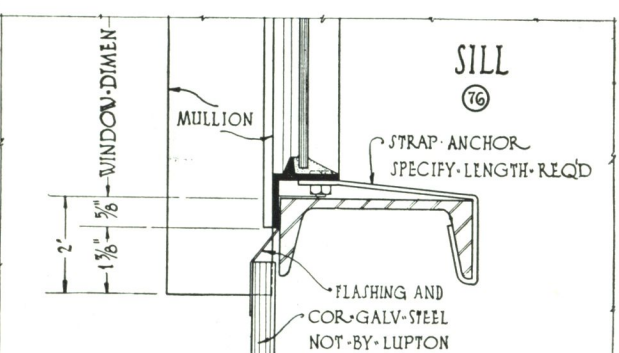
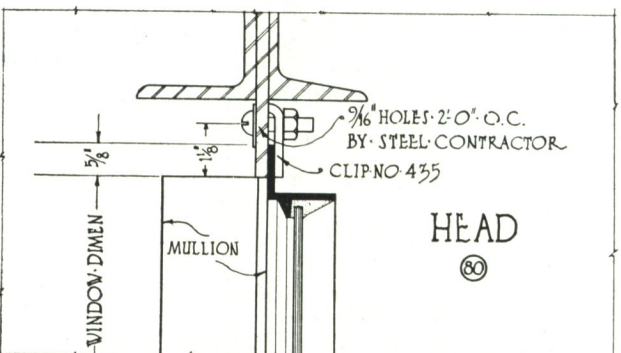
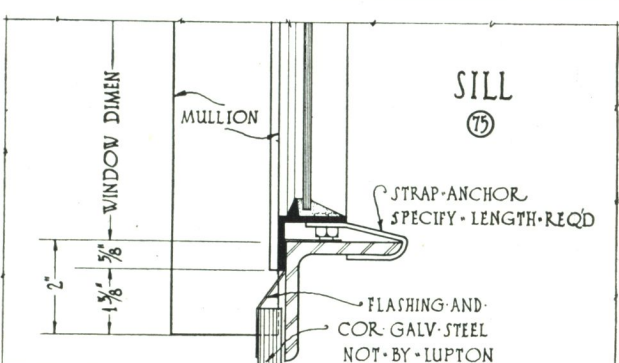
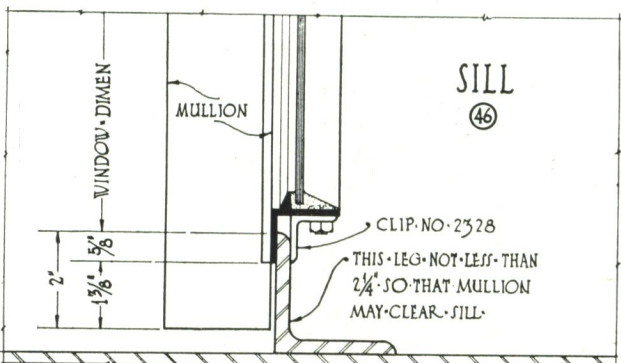
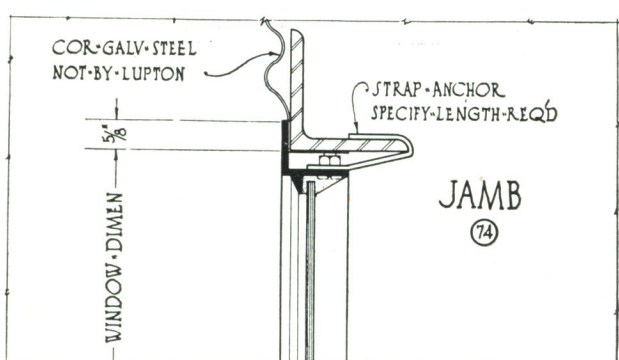
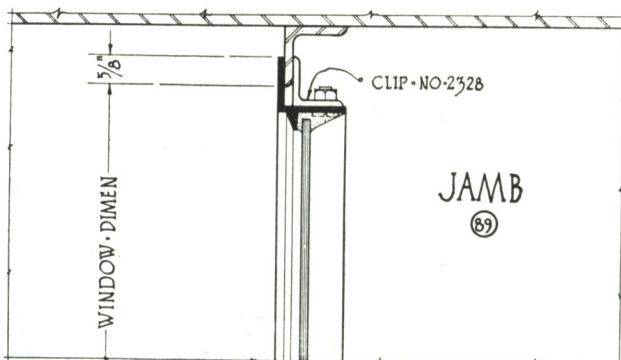
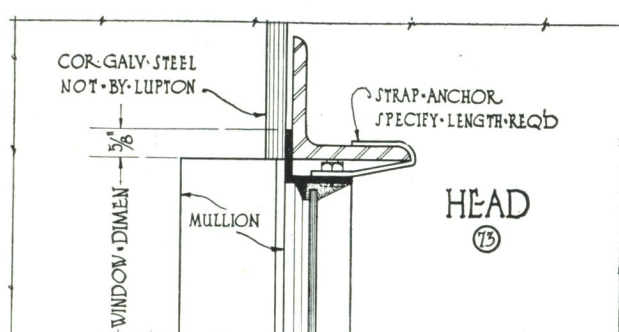
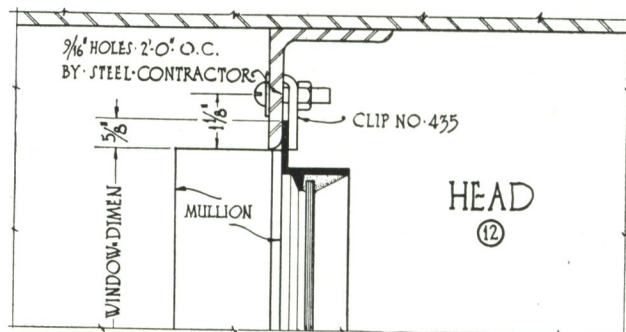












## NOTES

1. ~ Structural steel members are not furnished by Lupton.

2. ~ Mullion stems should always be turned outside when used in steel frames; otherwise a special notch is required at the sill.

3. ~ Numbers in circles, thus (75), are for designating the method of anchoring and the type of structural steel construction at the head, jamb or sill.

SCALE  
FOR DETAILS  
3" = 1'-0"

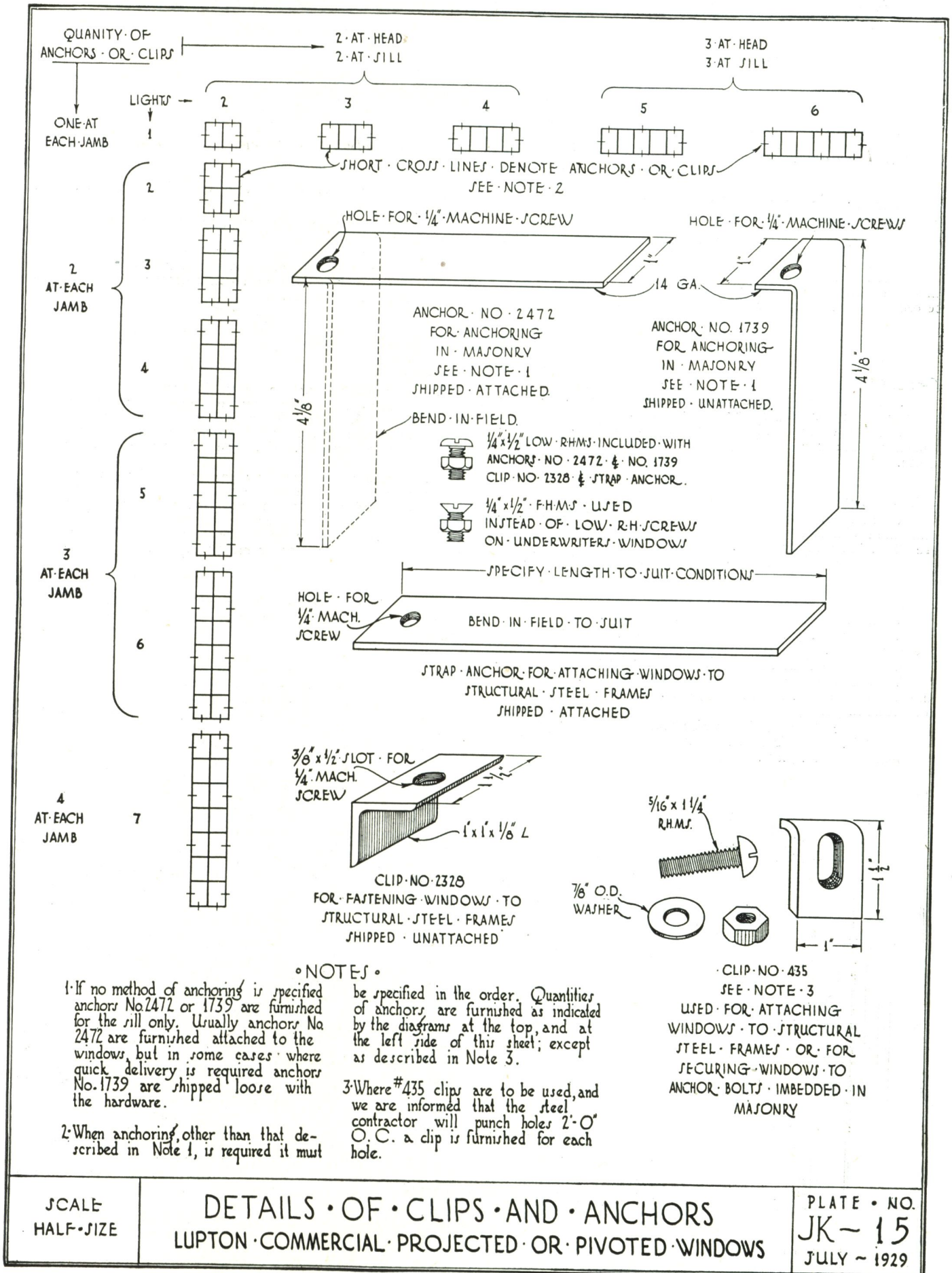
INSTALLATION IN STRUCTURAL STEEL FRAMES  
LUPTON COMMERCIAL PROJECTED OR PIVOTED WINDOWS

PLATE NO.  
JK - 13  
JUNE - 1930.











# COMMERCIAL PROJECTED AND PIVOTED WINDOWS

## With Underwriters' Labels



*Lupton Underwriters' Pivoted Windows are furnished only when specified in bid and mentioned in contract*

Wherever wire glass is to be used for fire protection it is advisable to specify Underwriters' Labelled Windows.

Lupton Dealer Stock and Standard Windows, when fitted with special hardware and glazing angles, may receive underwriters' labels.

Where immediate delivery is essential, stock windows may be altered at slight extra cost to receive labels before shipment from our Philadelphia, Cleveland or Chicago

warehouses. Windows cannot be altered to receive labels after shipment.

It is important to give complete information with the order. The underwriters' inspector will not label windows until he receives the following data: (1) number and size of the units in each masonry opening, (2) details at head, jams and sill. The latter is required so that proper anchoring connections may be furnished.

### THE UNDERWRITERS' REQUIREMENTS

#### Opening Sizes

1. Single Unit openings may not exceed 84 sq. ft. area. Neither width nor height may exceed 12 ft.
2. Multiple unit openings may not exceed 12 ft. in height. Opening width is not limited, but no unit may exceed 7 ft. in width.

#### Glass Sizes

3. Maximum exposed glass area of single light is 350 sq. in. Maximum dimensions measured tip to tip of glazing angles are 48 ft. horizontally, 54 in. vertically.

*Note: Glass in standard units is less than this.*

#### Ventilators

4. All projected ventilators must open out.
5. Hinges for pivoted vents must have stop lugs limiting opening to 135°.
6. No more than two ventilators may be used in a unit.
7. Maximum area of one ventilator is 20 sq. ft. Maximum dimensions are 5 ft. horizontally, 4 ft. vertically. (See detail for measure point.)

*Note: The maximum size recommended by us is 41x38 in. which is a ventilator 3 lights wide, 2 lights high, 14x20 in. glass.*

#### Hardware

8. All hardware must be malleable iron.
9. Projected ventilators may be operated by gravity type handle (No. 141, page 76) or spring catch. Beyond reach from floor handle or spring catch may be operated by chain, or a pull down ring (No. 4481, page 76) may be used for pole operation.
10. Pivoted ventilators may be operated by spring catch and chain or gravity type handle (No. 141, page 82) and chain. Chain arrangement is same as used for standard windows with addition of a fusible link (see page 82, and detail on this page). With the approval of the local inspection board, stay bars may be used instead of handles or spring catches.

#### Mullions

11. Mullions must be 339 section anchored at head and sill by means of clips, bolts or embedded in the masonry. (See page 86.)

#### Construction of Units

12. Construction is the same as for the Lupton Standard Commercial Projected or Pivoted Windows with addition of glazing angles and expansion interlocks. (See detail on this page.)
13. Curved or splayed head units cannot be labeled.

#### Glazing Angles

14. Glazing angles ( $\frac{1}{8} \times \frac{1}{2} \times \frac{1}{8}$  in.) must be fastened to the window sections with steel screws. The  $\frac{1}{8}$  in. leg is to be upstanding.

*Note: Small lights up to 100 sq. in. area may have  $\frac{1}{8}$  in. upstanding leg.*

#### Glass

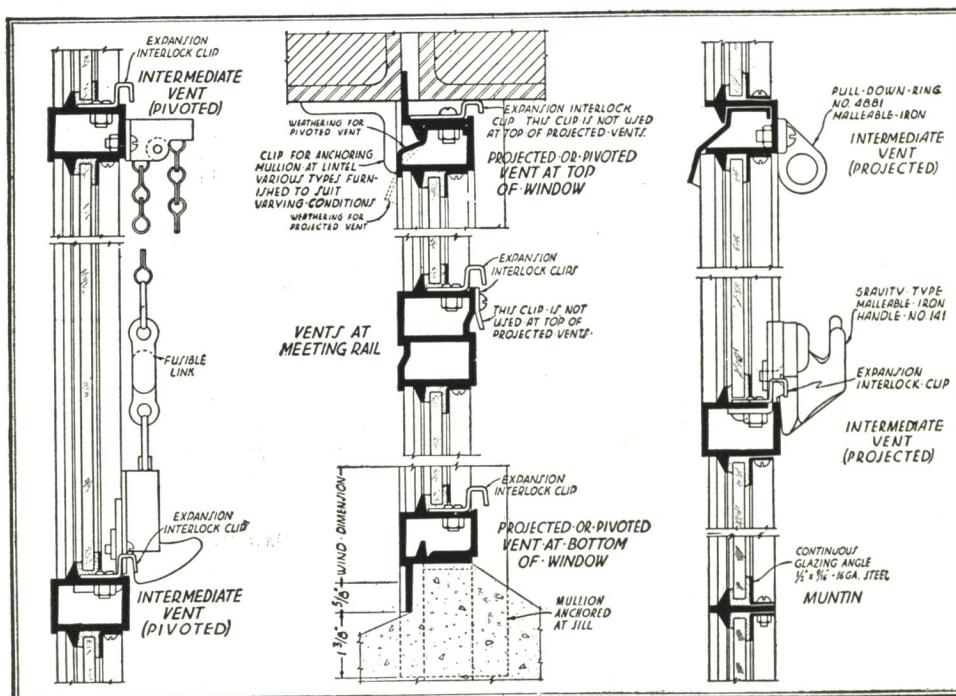
15. Glass must be  $\frac{1}{4}$  in. thick wire glass.

#### Anchoring

16. Windows must be anchored by embedding the window flange in the masonry or by using any of the clips or anchors illustrated on page 91. Spacing of anchors is different from the standard spacing of anchors shown on page 91 and is as follows:

**At Head or Sill**—One not more than  $8\frac{1}{4}$  in. from each end of frame member and one approximately at center of each light.

**At Jamb**—One not more than 12 in. from each end of frame member and one approximately at center of each light.



Details of Special Features

(Scale 3" = 1' 0")

LUPTON PAGE 92

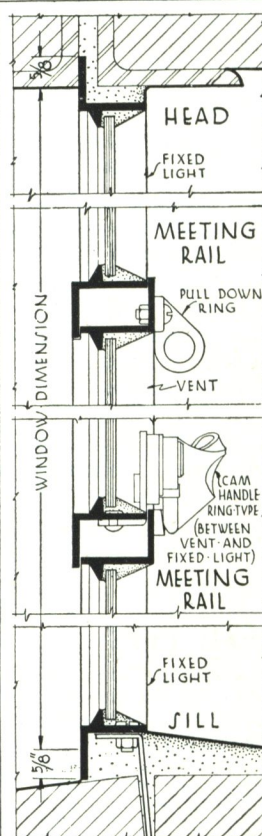


## ALUMINUM WINDOWS—INDUSTRIAL TYPE

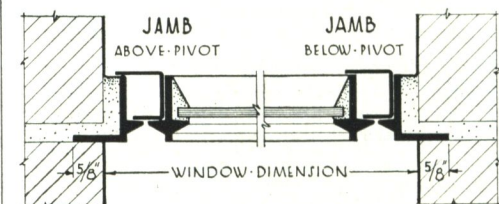
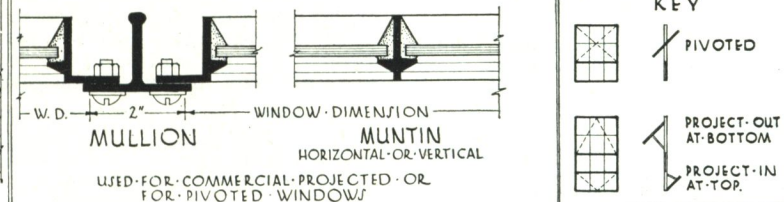
Made in Pivoted and Commercial Projected types. Sections, glass sizes, wall details and anchoring are same as for steel windows. See pages 86 to 91. Available sizes are shown in diagrams. Ventilators must extend the full width of units.

Muntin intersections are welded and in the projected type corners of frames and ventilators are welded. Pivoted vents have cadmium plated malleable iron friction hinges, projected vents have white bronze friction shoe with sherardized coil spring and anti-cling insert. Locking hardware is all of white bronze with dull lacquered finish same as for Aluminum Casements. See pages 27 and 28.

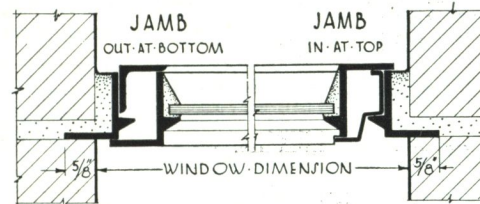
Windows have natural extruded aluminum finish. (For finish of windows and general properties of aluminum, see page 26.)



| STANDARD TYPES AND SIZES |           |           |           |           |           |
|--------------------------|-----------|-----------|-----------|-----------|-----------|
| WINDOW DIMENSION—WIDTH   |           |           |           |           |           |
| NO. OF LIGHTS            | 2' 1 1/8" | 3' 2"     | 4' 2 3/8" | 5' 2"     | 6' 2"     |
| GLASS                    | 14" x 10" | 14" x 10" | 14" x 10" | 14" x 10" | 14" x 10" |
| WINDOW DIMENSION—HEIGHT  | 2' 1 1/8" | 3' 2"     | 4' 2 3/8" | 5' 2"     | 6' 2"     |
| 2                        | A-32      | A-32160   | A-42      | A-42180   | A-52160   |
| 3                        | A-33      | A-33161   | A-43      | A-43181   | A-53161   |
| 4                        | A-34      | A-34161   | A-44      | A-44181   | A-54161   |
| 5                        | A-35      | A-35161   | A-45      | A-45181   | A-55161   |



PIVOTED



COMMERCIAL-PROJECTED

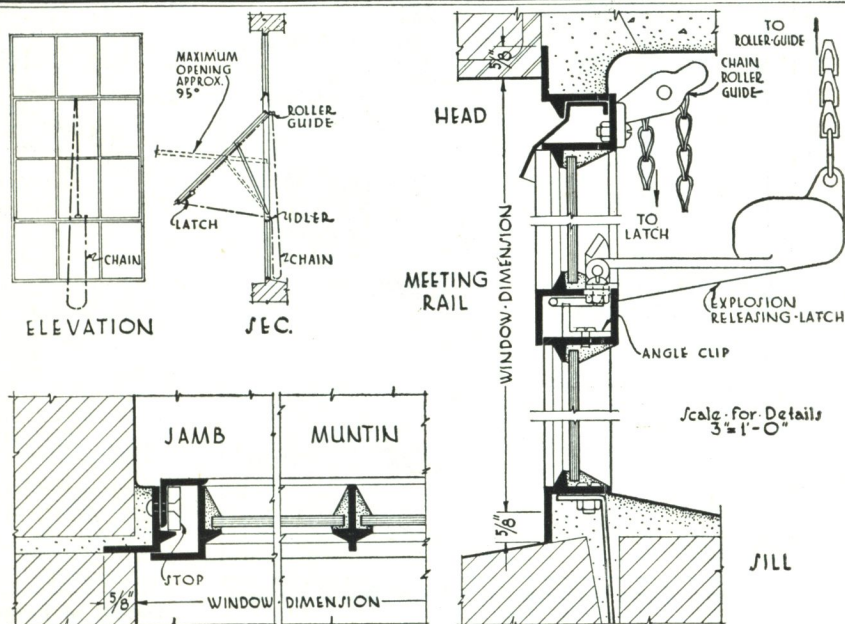
## EXPLOSION RELEASING LATCH FOR COMMERCIAL PROJECTED WINDOWS

Commercial Projected Windows equipped with explosion releasing latch operate automatically to relieve internal explosive pressure. Used wherever explosion hazard is present as in film storage rooms, etc.

Construction of the window is the same as for the standard Commercial Projected Window except that a special friction shoe is used. Opening sizes, glass sizes and anchoring details are same as for Standard Commercial Projected Windows. See pages 76 to 80 and 86 to 91. Glass must be 1/4 in. thick wire glass.

Normally the window is operated by the hand chain shown in illustration. Under explosive pressure however, the vent will open and remain open until closed by hand.

Patent Pending





## LUPTON PIVOTED WINDOW OPERATING DEVICES

Two types of operators are available for simultaneous operation of a group of pivoted ventilators.

**Tension Type**—The Tension type is similar to the tension operator described on pages 102 to 104, and is recommended for use where the length of run or number of ventilators exceeds the limits of the Torsion operator. It can be manually or electrically operated.

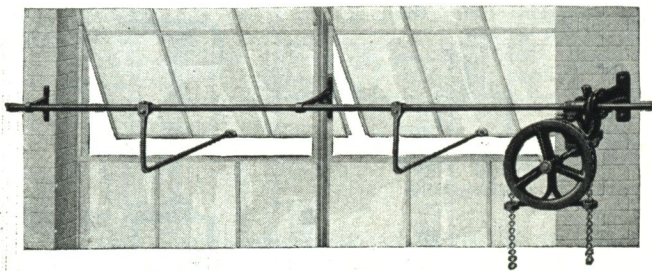
**Torsion Type**—Torsion type operators are either lever type or rack and pinion type. Limits of each type are given in the table at right.

### LIMITS OF OPERATION—TORSION OPERATORS

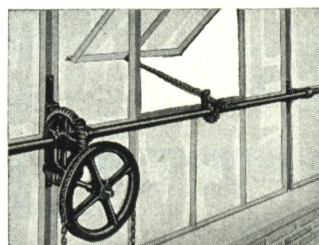
| Limits                                   | Lever type  |             | Rack and pinion type |
|------------------------------------------|-------------|-------------|----------------------|
|                                          | ½-in. shaft | 1-in. shaft |                      |
| Maximum length of horizontal shaft . . . | 20 ft.      | *80 ft.     | *160 ft.             |
| Maximum number of 6 light vents . . .    | 6           | 12          | 24                   |

\*Power to be located in center of run.

Lever type is hand operated. Rack and pinion type can be operated by hand or motor. In both types power is applied through a worm and gear to a horizontal shaft of standard, black wrought iron pipe supported in adjustable malleable iron brackets attached to walls or window mullions. Worm and gear can be open type or enclosed in oil tight case. See details on this page and page 96.



Lever Type Operator with Hand Chain Control



Rack and Pinion Type Operator

### SPECIFICATION FOR LUPTON PIVOTED WINDOW OPERATOR—LEVER TYPE

#### Work Included

1. Furnish and install where shown on drawings Lupton Operating Device, manufactured by DAVID LUPTON'S SONS COMPANY, Philadelphia, Pa.

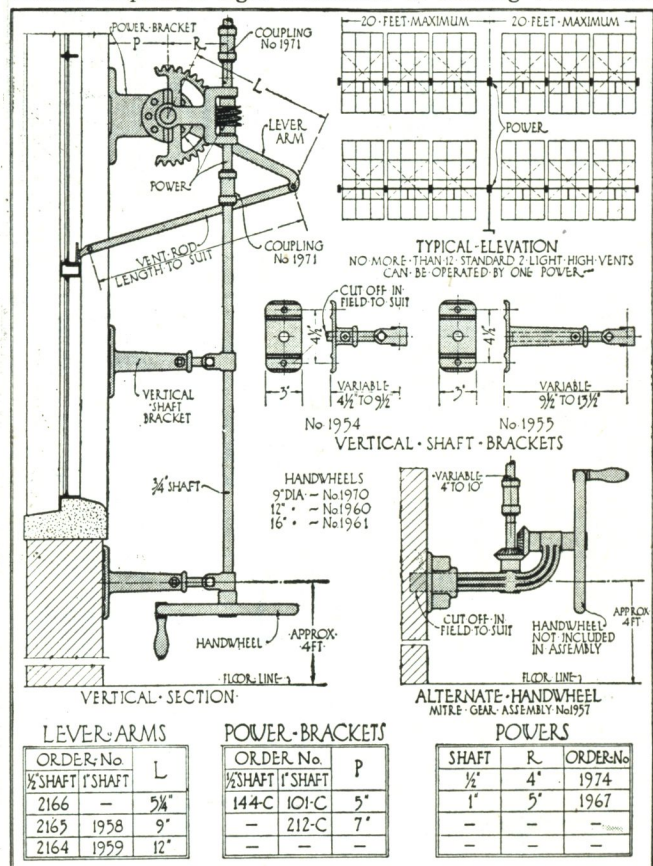
#### Materials and Construction

2. Power shall be a machine cut steel worm operating a gray cast iron segment worm gear assembled with a gray cast iron yoke and mounted on a malleable iron supporting bracket adapted to rigid attachment to building construction,

or, by means of extension clips, to window mullion. The hub of the segment gear shall be drilled to fit the power transmission line and shall be tightly secured to it with set screws so as to rotate the line on the gear axis.

**Note:** There are two types of power shaft; 1 in. and ½ in. The larger will operate runs up to 40 ft. on each side of power, and no more than 12 average size ventilators. The smaller will operate runs up to 10 ft. on either side of power and no more than 6 average size ventilators.

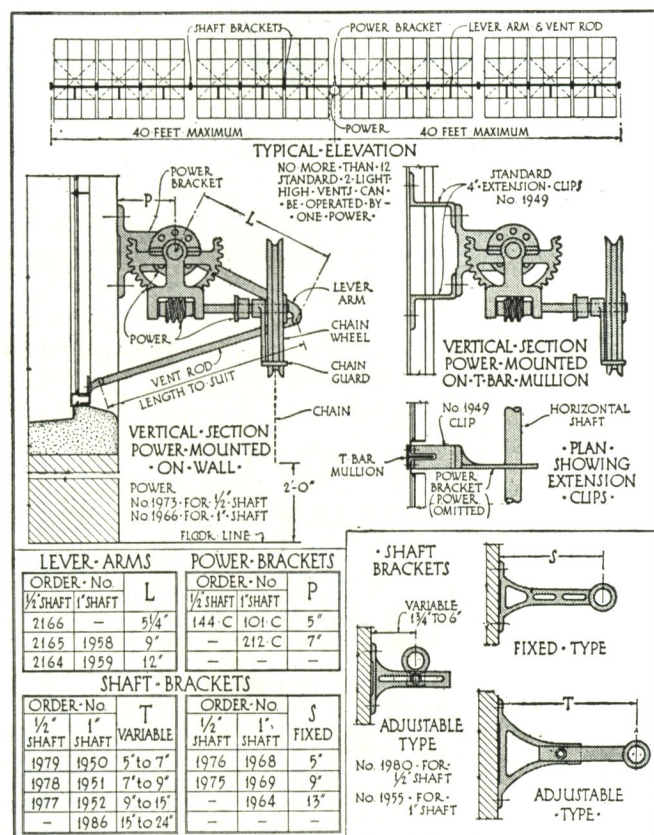
3. Power shaft shall be standard black wrought iron pipe joined into a continuous line by standard threaded pipe couplings, screwed tight and secured by two ¼ in. steel pins.



Details of Lever Type Operator with Hand Wheel Control

Scale ¾ in. = 1 ft.

Similar handwheel and vertical shaft can be used for rack and pinion operator



Details of Lever Type Operator with Hand Chain Control

Scale ¾ in. = 1 ft.

A similar method of control can be used for rack and pinion operator



4. Shaft shall be supported by malleable iron brackets attached to the window mullions or to the building construction.

5. Steel operating arms (one to each ventilator) shall be rigidly clamped to the shaft.

6. Connection between the operating arm and the ventilator shall be made by a steel vent rod and a malleable iron bracket mounted on the ventilator. Pivot pins at both ends of the vent rod shall be bronze.

*Note: Specify operation by chain or by vertical steel shaft.*

7. **Chain Operation**—Power shall be operated by No. 9 Register hand chain, operating over a chain wheel and guided by a guard. Both wheel and guard shall be gray iron castings. Wheel shall be accurately drilled, mounted in worm shaft and securely held by a setscrew. Chain shall terminate approximately 2 ft. above the floor.

*Note: Where building construction makes it impractical to hang the chain directly vertical from the power (as in monitor window installations) single and double chain idlers may be specified (at added cost).*

8. **Steel Shaft Operation**—Power shall be operated by a vertical  $\frac{3}{4}$  in. round, cold rolled steel shaft, coupled directly to the worm shaft with a malleable iron coupling. The shaft shall be supported by adjustable malleable iron brackets spaced not over 6 ft. apart, one bracket always being placed at the lower end of the shaft, approximately 4 ft. above the floor.

*Note: Lower end of shaft may be terminated in either one of two ways, specify which.*

9(a). (Wheel in horizontal plane.) A gray iron hand wheel and handle shall be mounted on the lower end of the shaft.

9(b). (Wheel in vertical plane.) The shaft shall be directly connected by a malleable iron coupling to a pair of miter gears of cut machine steel assembled with a gray iron hand wheel and handle on an adjustable malleable iron bracket.

*Note: When specified a gray cast iron housing is furnished for the miter gears at added cost.*

*Note: Where building construction makes it necessary, universal joints for the vertical shaft may be specified (at added cost).*

*cost). The angle between two adjacent lengths of shaft must not be less than 135°.*

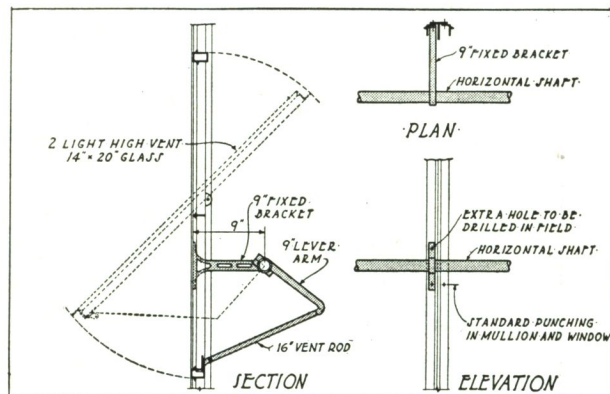
## Erection

10. All operating devices shall be erected and adjusted to proper working order by the window contractor.

## Painting

11. All operating devices shall have one coat of manufacturer's standard, dark gray paint, oven dried and applied before shipment.

*Note: The following should be provided for in the paint specifications—one coat of red lead and oil should be applied after erection followed by one or more coats of finishing paint as required.*



Application of Lever Type Operator  
Scale  $\frac{1}{2}" = 1' 0"$

## SPECIFICATION FOR LUPTON PIVOTED WINDOW OPERATOR—RACK AND PINION TYPE

### Work Included

1. Furnish and install where shown on drawings Rack and Pinion Type Operating Device, manufactured by DAVID LUPTON'S SONS Co., Philadelphia, Pa.

### Materials and Construction

#### 2. Power—

*Note: There are three types of powers as follows:*

2(a). Power shall be a worm and gear having a 40 to 1 ratio. Worm to be cut from steel, worm wheel to be cast iron with cast teeth and fastened to the horizontal shaft with two setscrews. Worm and wheel shall be held in mesh by a cast iron yoke.

2(b). Power shall be a worm and gear having a 26 to 1 ratio. Worm to be cut from steel and provided with a thrust bushing. Worm wheel to be cast steel with cut teeth and fastened to the horizontal shaft with two  $\frac{1}{4}$  in. diameter steel pins. Both worm and gear shall be enclosed in an oil tight case.

2(c). Power shall be a worm and gear having a 60 to 1 ratio. Worm to be cut from steel and to be provided with two Nice ball bearings. Worm wheel to be cast iron with cut teeth and attached to horizontal shaft with two  $\frac{3}{8}$  in. diameter steel pins. Worm and wheel shall be enclosed in an oil tight cast iron case.

3. Power shall be mounted on a malleable iron bracket adapted to rigid attachment to building construction or by means of clips to window mullion.

4 and 5. **Power Shaft**—See specification for Lupton Operating Device Lever Type—paragraphs 3 and 4.

*Note:  $\frac{1}{2}$  in. pipe is not used for the rack and pinion operator. In addition to the 1 in. standard pipe, 1 in. extra heavy and 1 in. double extra heavy pipe may be used.*

6. One rack and pinion shall be provided for each ventilator. Rack shall be of  $1\frac{1}{2}$  in. steel channel punched with slots to mesh with a malleable iron pinion clamped with one bolt to the horizontal shaft so tightly as to withstand a pull of 300 lb. on a 2 in. radius.

7. Rack and pinion shall be held in mesh by two 13 gauge steel yokes with two brass bushed steel rollers.

8. Rack shall be—

*Note: Racks may be straight or curved and may be attached at top or bottom of center pivoted ventilators. Specify type and where attached.*

9. A malleable iron hinge shall be provided for attaching the rack to the ventilator. Hinge shall be adjustable so that all vents may fit tight when closed.

10 to 14. **Operation**—

*Note: See specification for Lever Type Operating Device, paragraphs 7 to 9(b) inclusive, at top of this column.*

*Note: Power described under paragraph 2(c) may be operated by motor, specify as follows:*

15. Power shall be operated by a motor bolted to the base

of power and geared to power with a spur gear. Limit switch shall be attached to power. Push button with open, closed and stop buttons and a motor control panel as well as limit switch shall be furnished by manufacturer and operator.

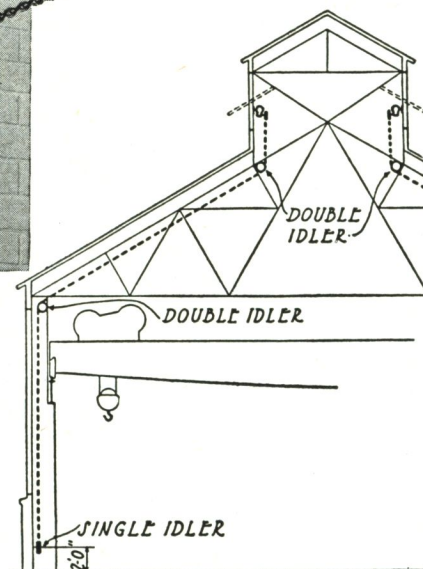
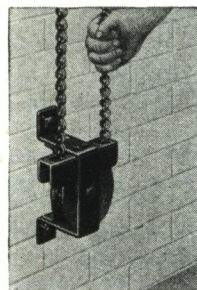
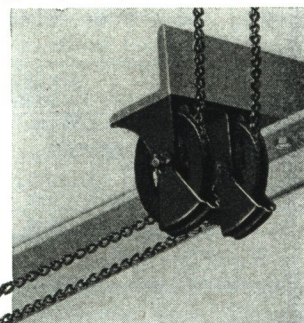
*Note: Conduit wiring and line switch are to be furnished by the electrical contractor. See "Electrical Construction" under specification for Lupton Tension Type Operating Device, Lupton page 104.*

## Erection and Painting

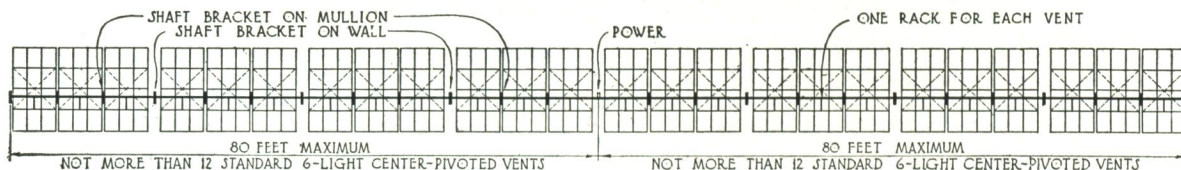
*Note: Same as for Lever Type. See top of this column.*

## Application of Chain Operator to Monitor Windows

This arrangement can be used for either the Lupton Lever Type, Rack and Pinion Type or Tension Type Operating Device







ELEVATION OF TYPICAL HAND CHAIN OPERATION

LIMITS

Center Pivoted (vents pivoted 2 ins above center)

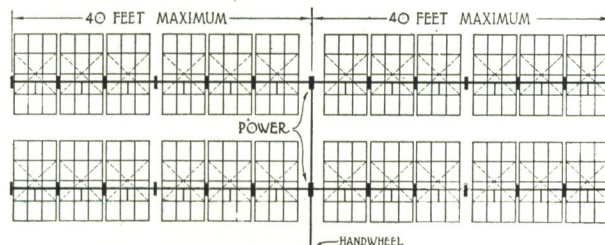
Not over 24 standard vents - see diagrams at right

Top Pivoted (vents pivoted 4 ins from top)

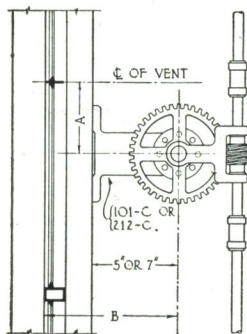
Limits are 1/2 those shown for Center Pivoted -

Continuous Windows (vertical, top hinged)

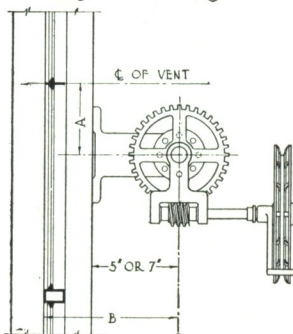
\* 3 ft. high-100 ft., 4 ft high-90 ft., 5 ft high-60 ft., 6 ft high-40 ft.



TYPICAL ELEVATION OF MULTIPLE BANK HANDWHEEL OPERATION



HANDWHEEL OPERATION



HAND CHAIN OPERATION

## POWERS WITH FULL WORM GEAR

VERTICAL SHAFT &amp; HANDWHEEL SAME AS FOR L.O.D.

SCALE 3/4" = 1'-0"

NOTE POWERS ARE MOUNTED ON \*101-C (5') OR \*212-C (7') L.O.D. POWER BRACKETS ATTACHED TO WALL WHERE POWERS ARE TO BE ATTACHED TO MULLIONS 4-INCH EXTENSION CLIPS \*1949 ARE USED, SAME AS FOR L.O.D.

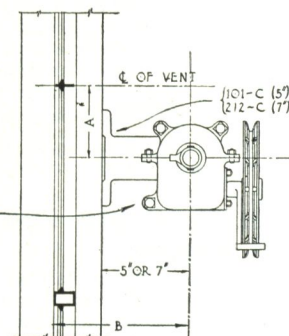
| USING EXTENSION CUTG. NO. | "C" VARIABLE     |
|---------------------------|------------------|
| 215-C                     | 14" to 16 1/2"   |
| 460-C                     | 12" to 14 1/2"   |
| 113-C                     | 9" to 12"        |
| 111-C                     | 7 1/2" to 9 1/2" |

SHAFT BRACKET

## TYPE "LA" POWER

IN OIL TIGHT CASE  
HAND CHAIN OPERATION

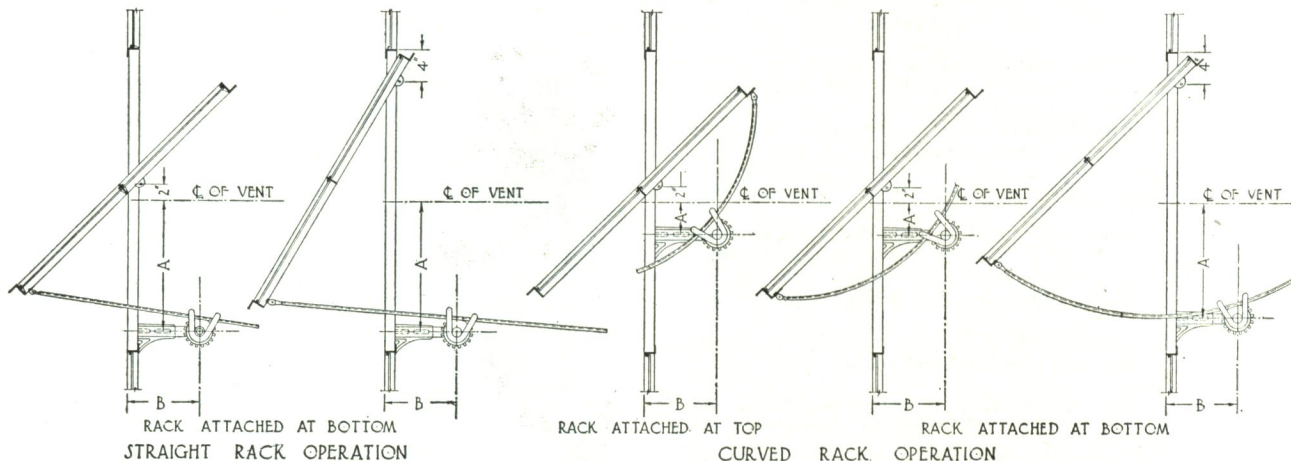
HAND WHEEL OPERATION USES SAME SHAFT & HANDWHEELS AS LUPTON OPERATING DEVICE  
SCALE 3/4" = 1'-0"



\* When applied to Continuous Windows, shaft is 1" Double Extra Strong pipe, Power is at center of run and Racks are 10'-0" apart.

| GLASS SIZE | STRAIGHT RACK<br>60" MAX. OPG. |         |                   |                | CURVED RACK FOR<br>CENTER PIVOTED WINDOWS ~60" MAX. OPG. |         |                |      | CURVED RACK FOR<br>TOP PIVOTED WINDOWS |         |             |                                |              |
|------------|--------------------------------|---------|-------------------|----------------|----------------------------------------------------------|---------|----------------|------|----------------------------------------|---------|-------------|--------------------------------|--------------|
|            | LOCATION OF<br>C. OF SHAFT     |         | LENGTH OF RACK    |                | LOCATION OF<br>C. OF SHAFT                               |         | LENGTH OF RACK |      | LOCATION OF<br>C. OF SHAFT             |         | MAX<br>OPG. | LENGTH<br>OF RACK<br>(22" RAD) | MAX.<br>OPG. |
|            | A                              | B       | CENTER<br>PIVOTED | TOP<br>PIVOTED | A                                                        | B       | I *            | II * | A                                      | B       |             |                                |              |
| 12" x 18"  | 15 3/8"                        | 9 3/8"  | 28"               | 38 1/2"        | 4"                                                       | 9 3/8"  | 27"            | 27"  | 14 3/8"                                | 9 3/8"  | 60"         | 39"                            | 55"          |
|            |                                | 13 3/8" | 32"               | 42 1/2"        |                                                          | 13 3/8" | 27"            | 31"  |                                        | 13 3/8" | 60"         |                                |              |
| 14" x 20"  | 16 3/8"                        | 9 3/8"  | 28"               | 42 1/2"        | 4"                                                       | 9 3/8"  | 27"            | 27"  | 15 3/8"                                | 9 3/8"  | 60"         | 43"                            | 55"          |
|            |                                | 13 3/8" | 32"               | 46"            |                                                          | 13 3/8" | 31"            | 31"  |                                        | 13 3/8" | 60"         |                                |              |

\* I RACK ATTACHED AT TOP OF VENT II RACK ATTACHED AT BOTTOM



SCALE

AS SHOWN

## CONSTRUCTION &amp; APPLICATION

## RACK &amp; PINION OPERATOR

LUPTON MECHANICAL OPERATOR

PLATE - NO

M - 1

AUGUST-1929

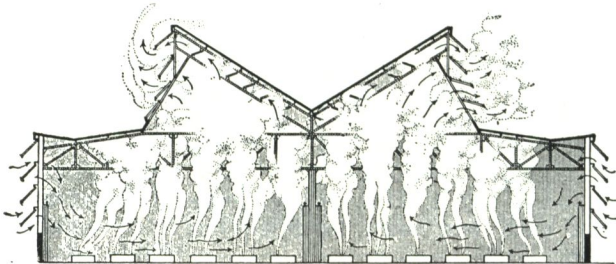


## LUPTON V-TYPE ROOF DESIGN

The Lupton V-type Roof Design was primarily evolved to supply needed ventilation and daylight to foundries and similar buildings in which heat and gases are produced as a result of manufacturing processes.

Its remarkable efficiency both in ventilation and light distribution, has led to its adoption in many manufacturing buildings in various industries, regardless of size. These include automobile, rubber, glass and airplane factories in addition to a great number of foundries and buildings devoted to the metal manufacturing industries.

It corrects the faults of other roof designs, in that it quickly and thoroughly clears any size building of heat, foul air, or smoke. It provides large outlets arranged to receive the ascending air and heat currents with minimum lateral draft. There is no place anywhere within the steep planes of the V-shaped portion for stale air to be pocketed.

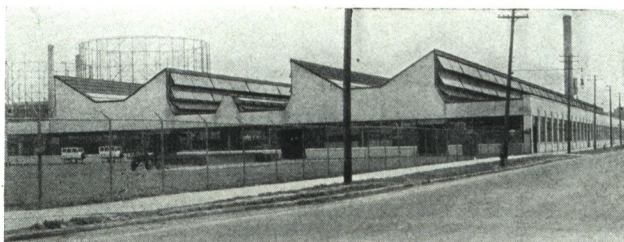


**Cross-section of Typical Lupton V-type Roof Used in a Foundry Showing Ventilation Features**

While ventilation and lighting are the primary functions of the Lupton V-type Roof, it gives maximum weather protection, because it incorporates the use of top hung continuous windows which are in themselves a weather protecting element.

**The Ventilation Features**—The old style monitor type roof proves faulty in several ways. Its outlets are too small for free discharge of individual heat streams. The center pivoted monitor windows allow rain and snow to blow over them, and cross winds to enter, chilling the warm monitor and causing down drafts. Consequently the windows need much closing and opening and have no ventilating value except under the most favorable conditions.

Lupton V-type Roof Design gives complete ventilation where the monitor failed. It provides for proper relation of fresh air inflow to stale air elimination. Buildings of unusual width are satisfactorily ventilated by the use of several V-shaped roof bays with Lupton A-Frames located between them. The lower the roof, in a heat producing building, the better. Such a roof need not be higher than is required for crane clearance.



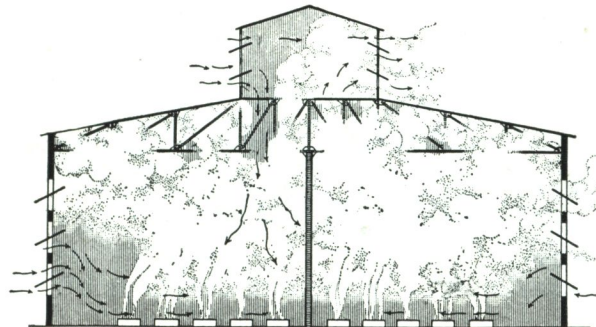
**Ford Motor Company, Lincoln Division, Detroit, Mich.**

ALBERT KAHN, Architect. WALBRIDGE, ALDINGER CO., Contractors

Two large V-shaped bays with an A-frame between them. All hung with Lupton Continuous Windows. Each line of windows is 842 ft. long and controlled by a single Lupton tension type operating device, motor driven. Lupton has equipped Ford plants in Jacksonville, Fla.; Norfolk, Va.; Dallas, Texas; Los Angeles, Cal., and Louisville, Ky.

**The Lighting Features**—The superiority in the lighting features of the Lupton V-type Roof Design is the result of carefully planned construction. The continuous windows in the sides of the truss permit lighting through a wider angle than other roof construction. A portion of light strikes the slopes of the roof, which results in a breaking up of light rays and a more widely spread diffusion of light. The combination of crossing rays produces an even lighting throughout the entire building.

There is no necessity of locating the building or its roof design in a theoretical position for interior lighting, for the lighting is from practically all sides, hard shadows are absent and workers can see clearly even when facing the window because of the light from behind.

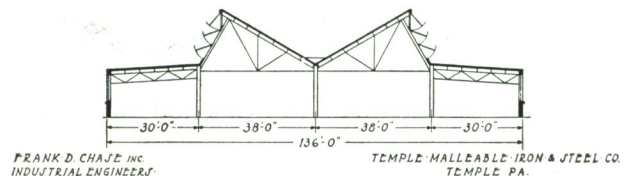


**Cross-section of Typical Old Style Foundry**

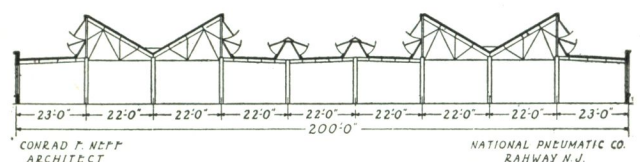
Owing to the light distribution, this type of roof requires less glass area than a saw-tooth roof for equally effective lighting, thus saving fuel. Investigations show that added cost of steel for a Lupton V-type Roof will be more than offset by a few years' fuel saving.

Fuel losses can be reduced and the average summer temperature decreased by the use of a suitable insulation between the roof slab and weather-proof covering. Exposed cement tile should be avoided.

**Engineering Service**—Lupton V-type Roof Design is not a stock design. For its correct and most efficient use, the proportions of trusses and A-Frames should be worked out for each particular case. Lupton Engineering service is available, to study your problem without obligation, and give our recommendations to insure a better lighted and ventilated building.



**Cross-section Showing Lupton V-type Roof**

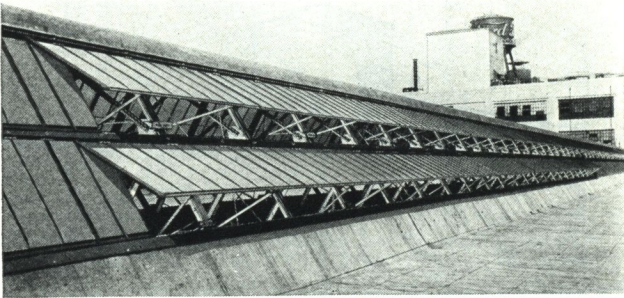


**Cross-section Showing Two V-shaped Bays with A-Frames Between Them. The A-Frames Provide Inlets for Fresh Air in Wide Buildings**



## LUPTON CONTINUOUS WINDOWS

These windows are designed for lighting and natural ventilation in roofs and sidewalls of industrial buildings where mass control of ventilation is necessary and desirable. Units can be joined end to end, by means of weatherproof expansion joints, to form a continuous window for openings as long as 1000 feet. Long runs such as this can be operated by a single motor driven operating device as described on page 103. When the windows are opened, there is formed over the opening a continuous awning of glass and steel that effectively prevents the entrance of rain, thus permitting ventilation in stormy weather. Storm panels are provided at the ends of runs to keep the rain out at these points.



**Lupton A-Frame in Roof, with Two Lines of Lupton Continuous Windows in the Sides**

This is one of several uses for this type window

**In Roofs**—Their most effective use is in the Lupton V-type Roof construction described on page 97, for industrial buildings with heat processes. The Lupton "A" Frame is the most inexpensive, practical ventilating skylight for roof lighting of other types of buildings. When furnished with Lupton Continuous Windows, sawtooth and monitor roofs give the best results of which they are capable.

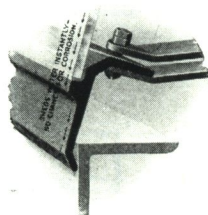
**In Sidewalls**—They can be used either in short lengths between pilasters or in long runs hung outside the wall columns.

**Operation**—Short runs (50 to 100 ft. depending on length of window) may be operated by the Rack and Pinion Operator described on page 94. For longer runs the Lupton Tension Type Operator described on page 102 should be used.

**Members**—Are solid one piece rolled steel sections. The sill member (section 360) is especially designed to shed water even when the window is open. Full size sections are shown on page 101.

**Welded Assembly**—At the joints the members are coped and solidly oxy-acetylene welded along the entire length of contact, making the unit a single rigid piece. There is no possibility of loosening joints with resultant cracked putty and broken glass.

**Expansion Joints**—Expansion joints are provided between units to allow for unavoidable inaccuracies in building construction and variations in length due to temperature. A section through an expansion joint is shown on page 100, Fig. 4. The frame member of one unit (section 326) overlaps the frame member (section



**Sill Member  
Section 360**

350) of the adjacent unit. The units are held together by an "expansion plate" and bolted as shown.

**Sizes of Units and Openings**—There are four standard heights of units: 3 ft., 4 ft., 5 ft. and 6 ft. These are overall dimensions. Clear heights of openings, from head girt to sill girt for any unit, are  $1\frac{1}{2}$  in. less than the overall height of unit. These heights must be carefully maintained in placing steel work, see details page 100.

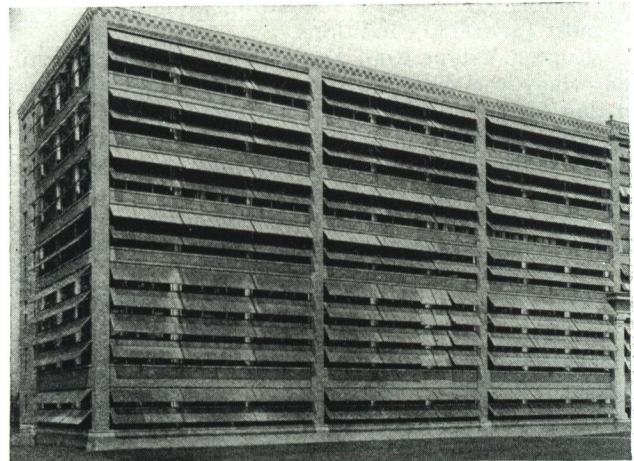
Standard units are 20 ft. long with muntins approximately 2 ft. 0 in. center to center. Shorter length units, 10 ft., 12 ft., 14 ft., 16 ft., 18 ft. long, are used at the ends of runs as needed to suit the openings.

**Storm and End Panels**—End panels 2-ft. long are usually used at ends of both stationary and operated runs in roofs. Storm panels attached to end panels and underlapping the operated windows for a distance of 2 ft., are desirable if windows are to remain open in stormy weather. See page 100, Fig. 4.

Overall length of window is always even feet; no odd feet or inches. See page 100, Fig. 4. To these even feet dimensions must be added not less than  $1\frac{1}{2}$  in. at each end (more if desired) for clearance and end flashings. Thus opening lengths are expressed as 84 ft. 3 in., 136 ft. 3 in., etc. Clearances exceeding  $1\frac{1}{2}$  in. at each end must be filled out with additional flashing.

**In the Side Walls**—Between pilasters, special width units and glass are sometimes necessary. The end rails of formed plate (section 326) overlap special plate weathering furnished by us, see details page 100, Fig. 3. Width of opening is specified by architect. Weathering is of standard overall width ( $5\frac{1}{2}$  in.) and is located to project from the masonry from  $1\frac{1}{2}$  to  $3\frac{1}{2}$  in. This gives an allowable variation of 4 in. in width of unit and saves needless glass cutting.

Weathering is set in pilasters by general contractor before the face brick or concrete is applied. We furnish a sketch showing its location and that of the two holes to be punched by the general contractor in the head girt angle to carry it.



**Firestone Tire & Rubber Co., Akron, Ohio,  
Mechanical Building**

OSBORN ENGINEERING CO., Engineers

By using Lupton Continuous Windows it is possible to work close to the windows without need of shutting them in case of rain. Every third column breaks the lines of windows. Other columns are spaced on 20 ft. centers and are set inside windows. Upper and lower lines of windows, each 56 ft. long, are connected in pairs and opened simultaneously by Lupton Tension Type Operating Device with hand chains.



**Standard Glass Sizes**—Standard glass heights are 3 in. less than the standard or overall heights of the units, i. e.:

|                            |              |
|----------------------------|--------------|
| No. 3 Unit 3 ft. high..... | 33 in. glass |
| No. 4 Unit 4 ft. high..... | 45 in. glass |
| No. 5 Unit 5 ft. high..... | 57 in. glass |
| No. 6 Unit 6 ft. high..... | 69 in. glass |

Standard lights are 23 and 24 in. wide, these widths being combined as needed to make the desired length of unit.

In ordering glass for replacement, the width and height for each light must be specified.

In ordering new units, only the nominal length of the units need be specified.

**Steel Work Required**—Structural Steel Work required for the installation of Lupton Continuous Windows and Continuous Window Operators, described in the Specifications and shown in the details for these products, is not furnished by Lupton. We furnish drawings showing punching in girt angles for attaching hinges, but the punching is done by the steel contractor.

**Clearances Required**—Clearances for hinges, overlap at sill, and operators must be strictly maintained. They must be kept free of rivets and other obstructions. All structural steel supporting windows must be straight and true, and must be directly attached to steel columns to avoid faulty alignment due to use of brick walls for support.

All estimates are based on our standard construction as shown in details. Extras will be charged for any special construction necessitated by departure from dimensions and clearances here indicated.

**Flashings**—All joints in sill and intermediate girt angles, all storm panels and end panels require flashings as shown by details on pages 100 and 101.

We do not furnish these flashings; they should be supplied by the sheet metal contractor. We will not be responsible for the weatherproofness of Lupton Continuous Windows where flashings are omitted.

Windows between pilasters require special end weathering in jambs which we furnish. See Detail on page 100, Fig. 3, for dimensions needed, covering both window and weathering.

## Power House Type Windows

Power House Type Windows are made of the same sections as the regular Lupton Continuous Windows. The units, however, are shorter than generally used for continuous windows and are set one above the other in as many tiers as required for the needed height. The structural steel frame in which the units are set is furnished by Lupton. Glass is held securely by glazing angles, which are continuous along the muntins and vertical side rails.

Both the window and operator usually have to be designed to meet special conditions and therefore a Lupton representative should be consulted for details.

## SPECIFICATION FOR LUPTON CONTINUOUS WINDOWS

### Work Included

1. Furnish and install where shown on drawing, Lupton Continuous Windows, manufactured by DAVID LUPTON'S SONS Co., Philadelphia, Pa.

### Materials

#### 2. Frame Members.

*Note: Structural steel members forming frame are not furnished by window contractor. They should be specified under the proper heading elsewhere in the specifications of other trades. The members required are shown on the details and are as follows:*

(a) A continuous girt angle at the head, to which the hinges are bolted. This angle should not be smaller than 3x3 in., ¼ in. to ⅝ in. thick. (Punching for hinges is not done by window contractor.)

(b) A continuous member at the sill. The face of this girt (usually an angle or a channel) should be in the same plane as the face of the girt angle at the head.

(c) A continuous girt angle between upper and lower lines of windows where one line is placed directly above the other. This member should be the same size as girt angle at head when windows above and below are both vertical or both sloping, but when windows above are vertical and windows below are sloping, the leg to which hinges for lower windows are bolted, should be at least 4 in. long.

3. Window Sections—Top rail, bottom rail and end rail shall be special hot rolled solid steel sections. Bottom rail shall be patented sill section No. 360.

Overlapping end rail shall be 13 gauge steel plate, formed.

4. Muntins shall be special hot rolled steel T section.

5. Jamb weathering of 13 gauge steel plate, formed, shall be furnished (but not installed) by the window contractor where the window extends between pilasters.

#### 6. Flashings.

*Note: Under proper heading elsewhere in specifications of other trades, specify sheet metal flashing at joints of and over gaps between girts, and condensation gutters (where required). These are not furnished by the window manufacturer.*

7. Steel Clips shall be furnished for storm panels and stationary windows.

8. Glazing wedges shall be of galvanized pressed steel.

### Construction

9. All Lupton Continuous Windows shall be designed for outside glazing.

10. All windows shall be straight and true with members in alignment and surfaces in a plane. All joints shall be rigid and tight. Members shall be coped, fitted together and oxy-acetylene welded along their entire length of contact so that their ultimate strength at the juncture will not be decreased.

11. The windows shall be hung on malleable iron hinges with heavy bronze pins.

12. Muntins shall be continuous from top to bottom of window. Joints at top and bottom rails shall be oxy-acetylene welded.

### Mechanical Operators

*Note: These are covered in other specifications.*

### Erection (See page 1)

13. All Lupton Continuous Windows shall be erected in prepared openings by the window contractor. They shall be set plumb and true, properly aligned, securely attached to structural members and properly adjusted before glazing.

*Note: (a) Include under the proper heading elsewhere in specifications of other trades, that all structural steel members that come in contact with Lupton Continuous Windows shall form straight parallel lines and shall be located, punched and flashed in accordance with the Lupton Continuous Window details. Where there is a deflection, structural members shall be straightened in the field by the structural steel contractor before windows are erected.*

*(b) Include in the masonry specification that all masonry openings shall be accurately constructed in accordance with the Lupton Continuous Window details and that all mortar grouting, pointing, etc., shall be done by the mason contractor after windows have been erected.*

### Painting (See page 1)

14. All Lupton Continuous Windows shall receive one shop coat of window manufacturer's standard, dark gray paint, oven dried.



## Glass and Glazing

**Note:** (See also page 1.) Glass and Glazing should be included under the proper heading elsewhere in the specifications of other trades.

(a) Specify vertical ribbed glass  $\frac{1}{4}$  in. thick. (Ribs to be placed on the side least exposed to dust.)

(b) Specify special L. C. W. putty.

(c) Specify that glass shall be set in a bed of putty and secured by steel glazing wedges supplied by the window manufacturer. Four wedges per light shall be used on windows 3 or 4 ft. high and six wedges per light shall be used on windows 5 or 6 ft. high.

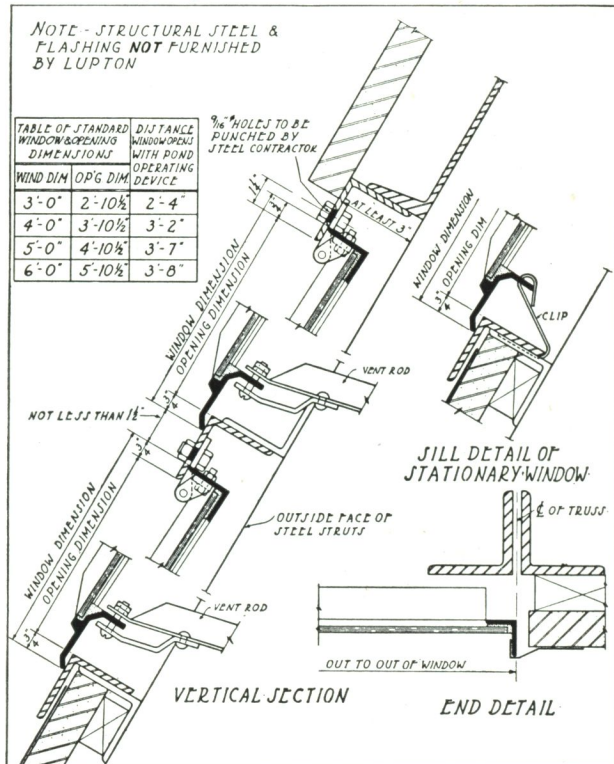


Fig. 1. Details of Sloping Windows

Scale 1½" = 1' 0"

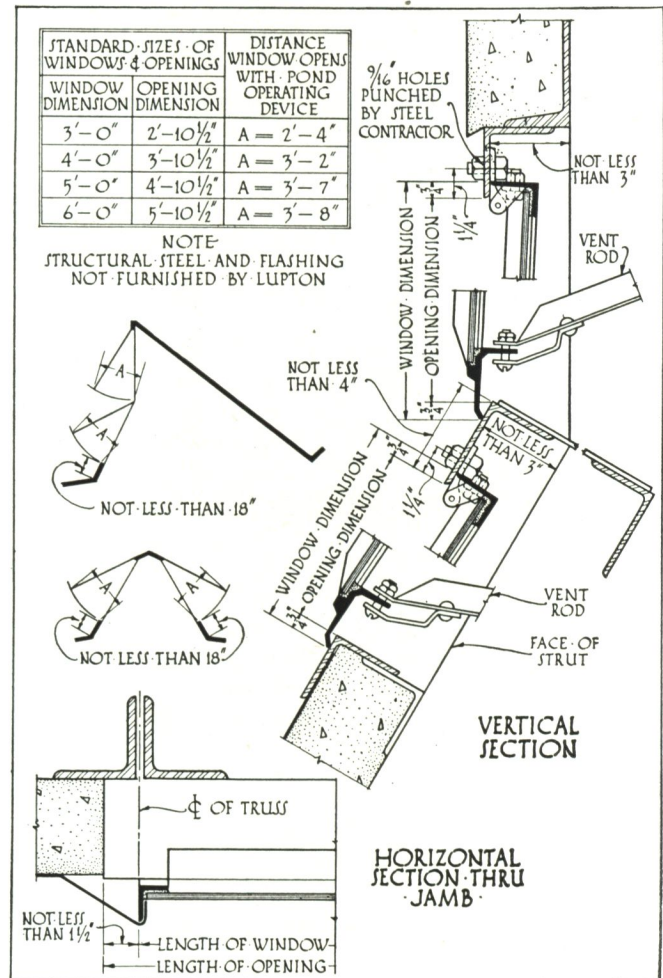


Fig. 2. Details of Vertical and Sloping Windows

Scale 1½" = 1' 0"

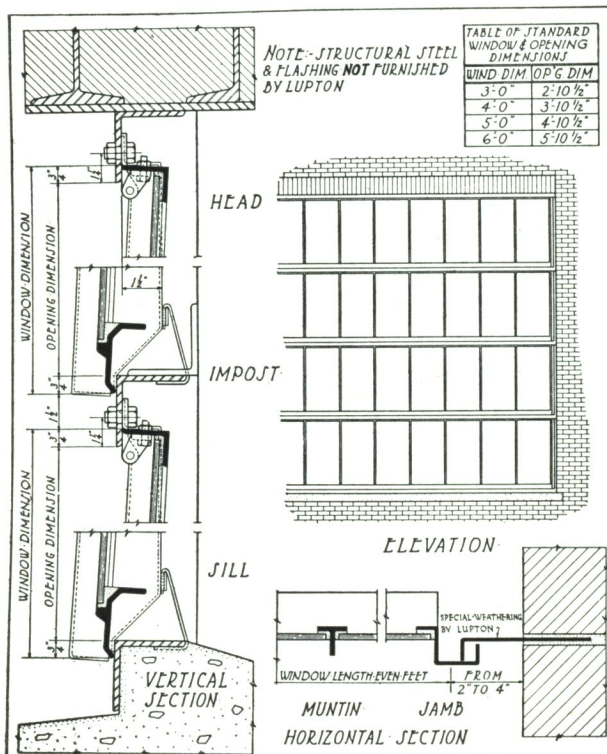


Fig. 3. Details of Sidewall Windows

Scale 1½" = 1' 0"

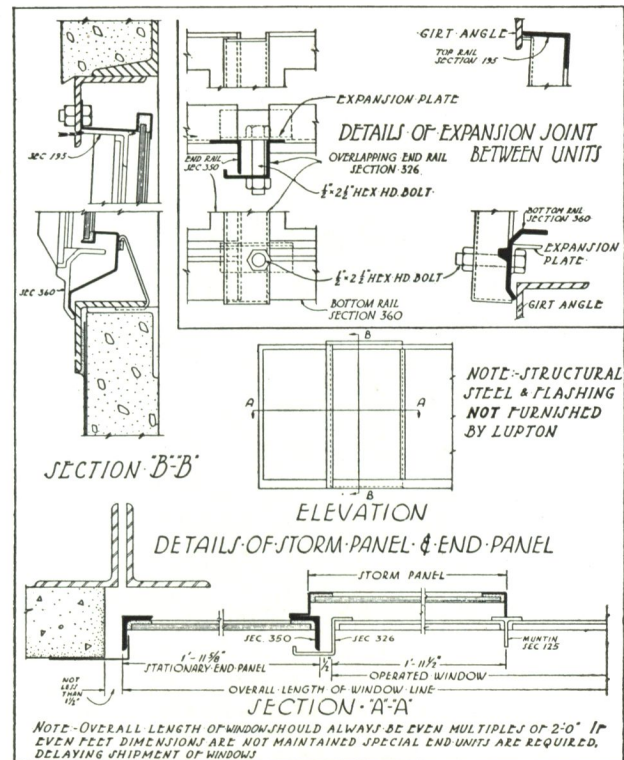
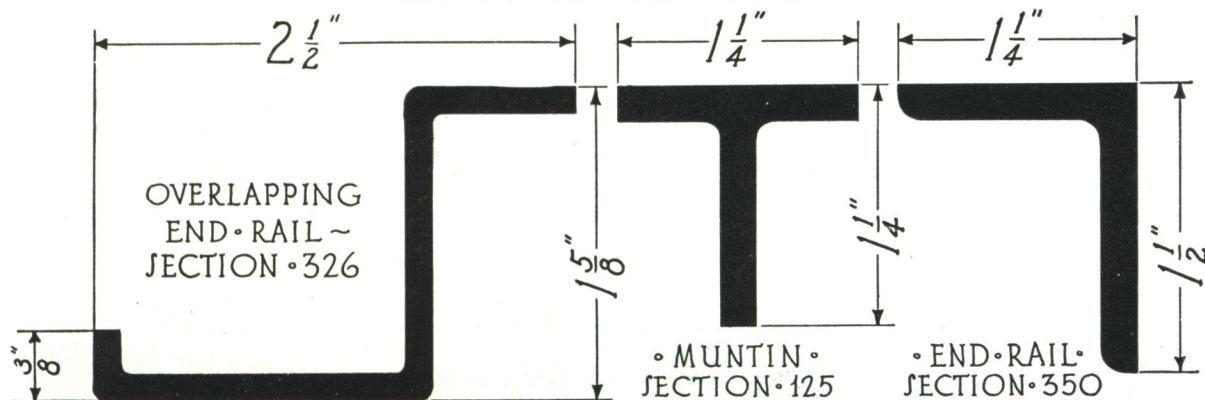


Fig. 4. Details of Expansion Joint, Storm Panel and End Panel

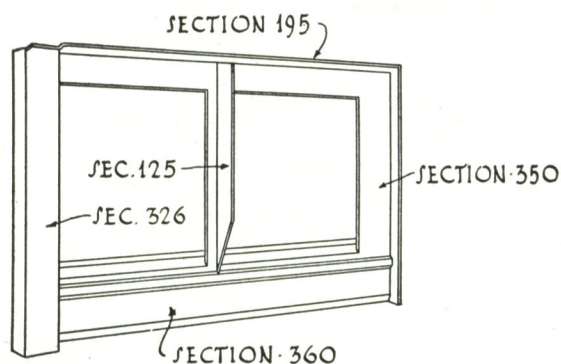
Scale 1½" = 1' 0"



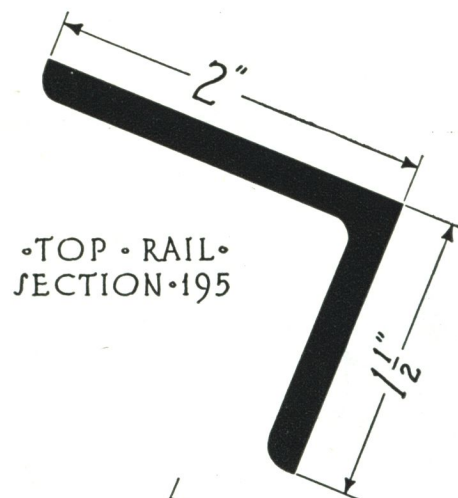
• LUPTON • CONTINUOUS • WINDOWS •  
• FULL • SIZE • SECTIONS •



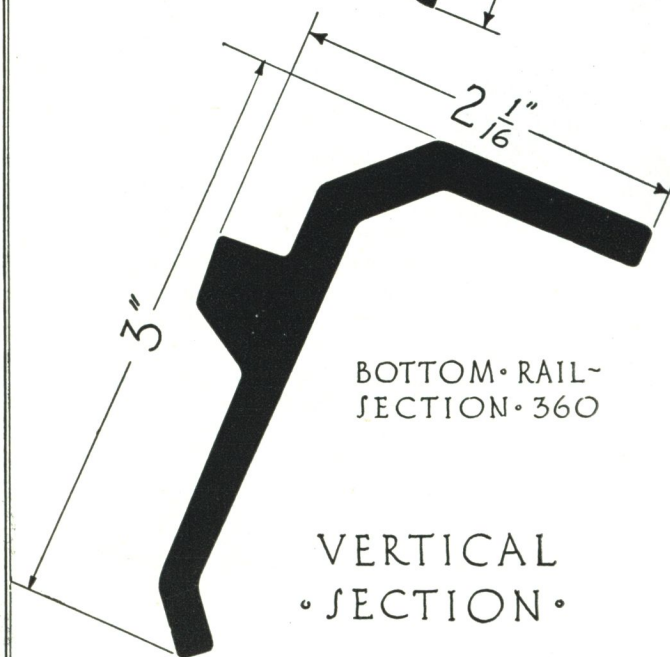
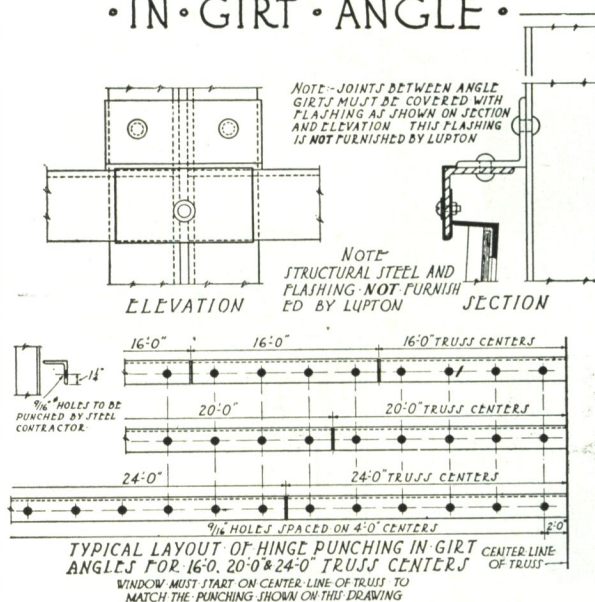
HORIZONTAL • SECTION



• DIAGRAM • OF • UNIT •  
• VIEWED • FROM • OUTSIDE •



HINGE • PUNCHING • AND  
FLASHING • OF • JOINT  
• IN • GIRT • ANGLE •





LUPTON CONTINUOUS WINDOW OPERATING DEVICES

Rack and Pinion Type

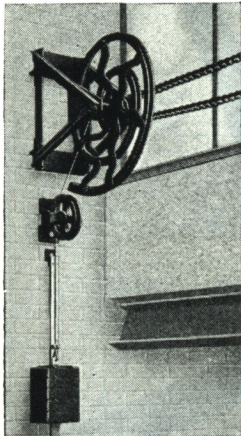
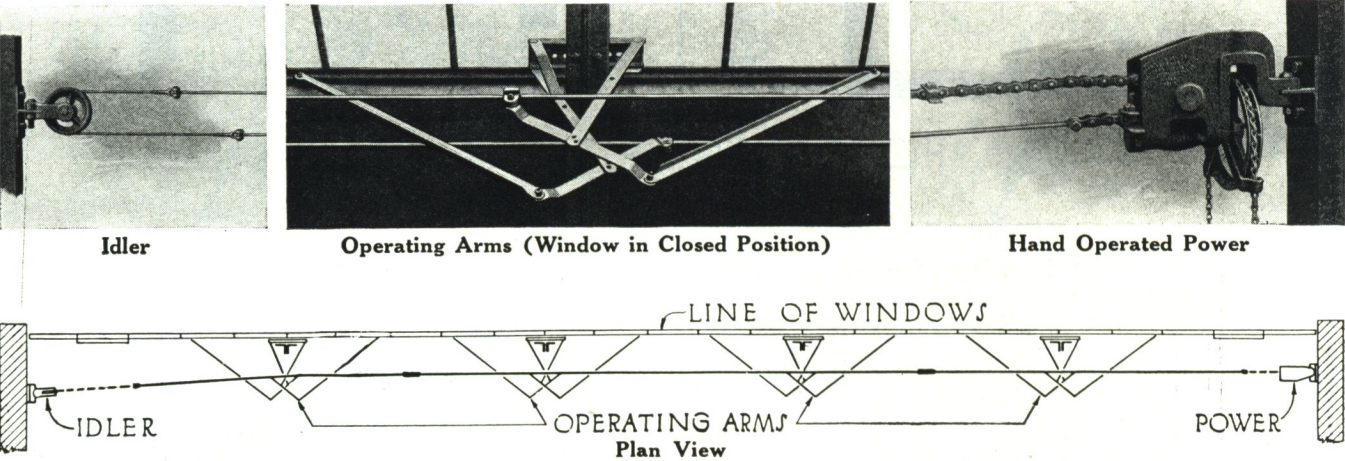
This type operator is described on pages 94 to 96. Designed primarily to operate pivoted windows, it will operate satisfactorily and economically short runs of continuous windows (70 to 100 ft., depending upon height of window).

Tension Type

The Lupton Tension Type Operating Device is the type usually specified in connection with Lupton Con-

tinuous Windows. It permits operation of extremely long lines of windows. Power is applied by hand chain or motor through worm and gear and transmitted by a double line of steel rods always in tension. Motion is transferred to the windows through pairs of operating arms arranged to eliminate useless stresses, friction and lateral thrust against the transmitting rods.

In a modified form it may be used to operate pivoted windows in groups exceeding the limits of the Rack and Pinion Operator.



**Spiral and Counterweight**  
Can be used instead of idler window part way open, and keep motor load and speed substantially uniform.

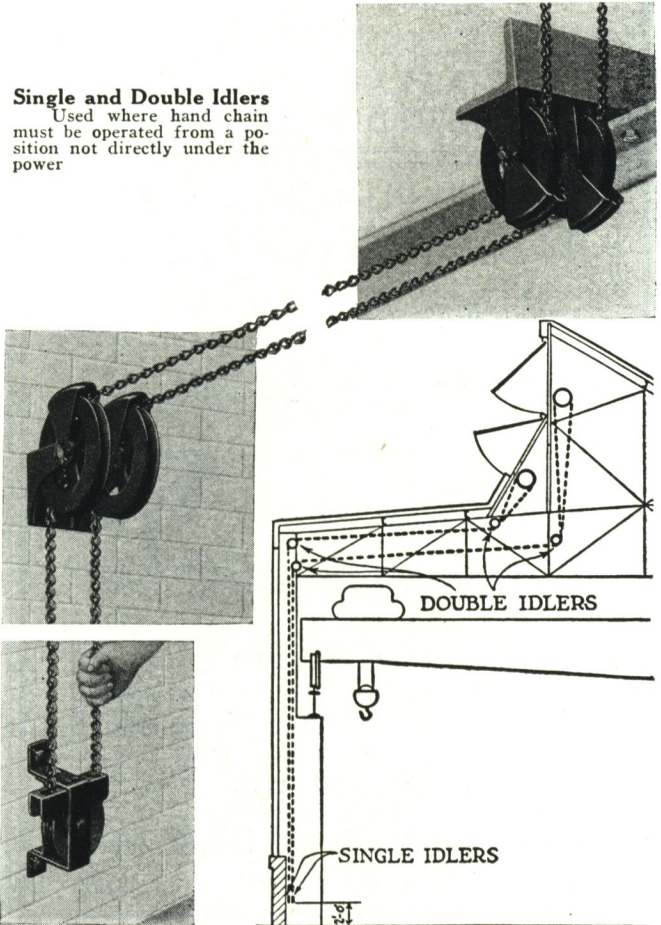
**Structural Work Required**  
All structural supports for Lupton Tension Type Operating Device are furnished by structural contractor. This includes supports for power and for operating arms attached to transmission rods. Lupton furnishes detail blue prints as needed.

**Spirals and Counterweights**  
Spirals and counterweights used in place of idlers, reduce the number of powers required as indicated in table below. They are recommended for use on long lines of motor operated windows as they prevent overload on motor when starting with window part way open, and keep motor load and speed substantially uniform.

| MAXIMUM LENGTHS OF RUNS IN FEET—WITH AND WITHOUT SPIRALS |                |           |                 |           |
|----------------------------------------------------------|----------------|-----------|-----------------|-----------|
| Height of window                                         | Hand operation |           | Motor operation |           |
|                                                          | Vertical       | 60° slope | Vertical        | 60° slope |
| With Idler                                               |                |           |                 |           |
| 3 ft.                                                    | 300            | 194       | 792             | 512       |
| 4 ft.                                                    | 190            | 132       | 500             | 346       |
| 5 ft.                                                    | 176            | 116       | 463             | 304       |
| 6 ft.                                                    | 166            | 100       | 438             | 263       |
| With Spiral and Counterweight                            |                |           |                 |           |
| 3 ft.                                                    | 500            | 323       | 1320            | 854       |
| 4 ft.                                                    | 317            | 220       | 833             | 577       |
| 5 ft.                                                    | 294            | 193       | 772             | 506       |
| 6 ft.                                                    | 276            | 167       | 730             | 438       |

| DEGREE OF OPENING WITH TENSION TYPE OPERATOR |               |
|----------------------------------------------|---------------|
| 3-ft. high top-hung continuous windows       | 46° or 28 in. |
| 4-ft. high top-hung continuous windows       | 47° or 38 in. |
| 5-ft. high top-hung continuous windows       | 42° or 43 in. |
| 6-ft. high top-hung continuous windows       | 36° or 44 in. |

**Single and Double Idlers**  
Used where hand chain must be operated from a position not directly under the power





### Motor Driven Power

Lupton Tension Type Operating Device, Motor Driven, ventilates the large industrial plant with the same precision and completeness as it does the small plant, by co-ordinated, uniform control.

The ideal ventilating result is obtained by operating all the windows by motors, with switches so located that both inlets and outlets may be regulated by the same person, preferably the foreman or shop superintendent. To control the air change or to open or close the windows for any reason then requires only the pushing of a button.

If certain bays require separate control, their switchboards can be located accordingly. Sometimes the floor space is divided between different departments having different ventilating requirements. The molding floor, the core departments, and the cleaning floor of a foundry, for example if under one roof, should each have its own window control.

In ventilating large buildings, one of two general purposes obtains. These are:

(1) To centralize and make easy the control of windows in buildings of unusual size, where the opening of short runs of windows by hand would take too long and possibly be neglected.

(2) To operate many windows quickly, as in a large foundry in winter, when it is desired to open them for a few minutes to get rid of the smoke without unnecessary loss of heat.

Both of these purposes are satisfactorily accomplished by Lupton Tension Type Operating Device, Motor Driven.

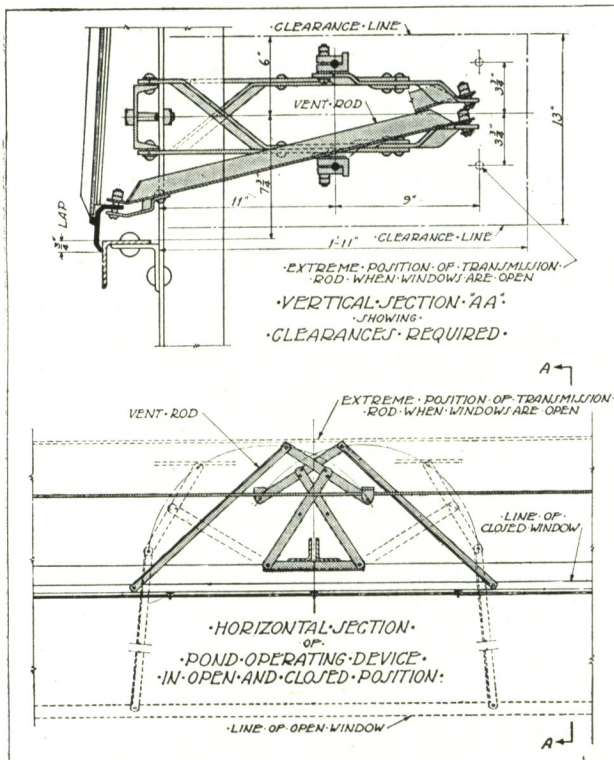
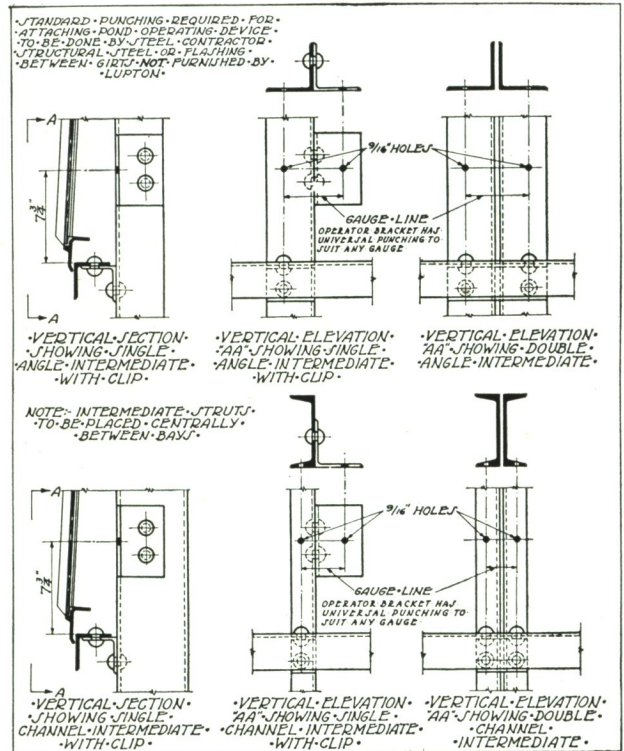
### Explosion Type Operator

Pat. No. 1747271

The explosion type operator is for use in chemical or rubber process buildings, granaries or other industrial buildings where explosion hazards are more or less unavoidable. The explosion operators are made in two types to operate Lupton Continuous Windows. The

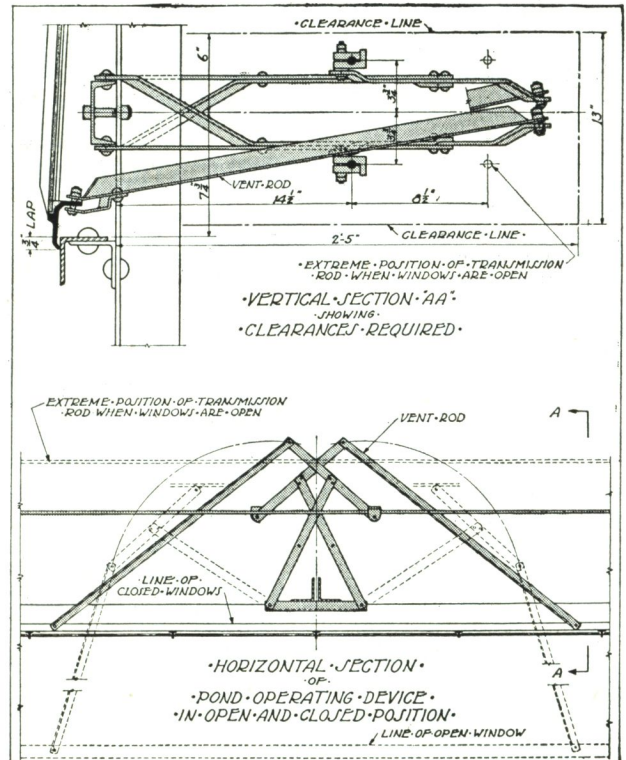
counterweighted type can be adjusted to operate automatically at any desired atmospheric pressure. The pressure type operator requires the explosive pressure to open the windows. It is recommended for storage buildings where there are no workmen. Both operators continue to hold windows open after explosion has occurred, allow the poisonous gases and smoke to escape and insure a quick change of air.

*Note: See also page 93 for an explosion releasing latch for small projected ventilators used in film storage rooms, etc.*



Operating Arm for 3 and 4-ft. Windows

Scale 1" = 1' 0"



Operating Arm for 5 and 6-ft. Windows

Scale 1" = 1' 0"



## SPECIFICATION FOR LUPTON TENSION TYPE OPERATING DEVICE

### Work Included

1. Furnish and install where shown on drawings Lupton Tension Type Operating Device, manufactured by DAVID LUPTON'S SONS CO., Philadelphia, Pa.

### Material and Construction

*Note: Structural Steel supports for Lupton Tension Type Operating Device are not furnished by the window contractor. These consist of uprights (angles, channels or tees) for attaching the operating arms.*

*For windows 5 or 6 ft. high the center spacing of the supports should not be less than 7½ ft., nor more than 16 ft.; for windows 3 ft. or 4 ft. high, the spacing should not be less than 6½ ft. nor more than 15 ft. Trusses on 20 ft. centers, with one intermediate usually make the most economical arrangement for steel work.*

2. **Power**—The operating power unit shall consist of a machine cut steel worm shaft mounted in ball-bearings operating a machine cut worm wheel. For manually operated powers the worm wheel shall be a steel casting made integrally with the sprocket wheel. For electrically operated powers the worm wheel shall have a bronze rim with cut teeth. Bearings shall be phosphor bronze. The power unit shall be assembled in a dust-proof, grease packed, cast steel case. The worm shall lock the window in any position.

3. **Power Brackets**—Power units shall be mounted on brackets made of structural steel angles, trussed to the building construction and designed to withstand the lateral stresses caused by operating the windows.

### Transmission Line

4. Transmission line shall consist of 2 lines of solid round steel rods. (*Note: Specify ½ in. or ¾ in. diameter as required by conditions.*) Where joints occur rods shall have the ends hot headed and securely clamped in malleable iron couplings so as to develop the maximum tensile strength of the rods.

5. At the end of the run the two rods shall be connected by a sprocket chain passing over the sprocket wheel in the power unit.

6. Forged steel turnbuckles shall be furnished to adjust the transmission line.

7. The rods shall not be run through guides, rollers or other bearings.

8.

*Note: There are two ways of terminating the end of the run opposite the power.*

*(A) With an idler, (B) With a spiral and counter weight. Specify which one is desired.*

*(A)* At the end of the run opposite the power unit the two rods shall be connected by a ¾ in. steel wire cable passing over an idler wheel. Bearing in idler shall be phosphor bronze.

*(B)* At the end of the run opposite the power unit the two rods shall be connected by a sprocket chain passing over a sprocket wheel of steel cast integrally with a spiral. A weight

shall be attached to the spiral by means of a steel wire cable in such a way that as the windows open the weight shall exert increasing force on the transmission line and balance a part of the load.

### Operating Arms

9. Operating arms shall be mounted in pairs on a 4 in. channel bracket. Bracket shall be rigidly bolted to structural steel supports furnished by others. Arms shall be of flat steel specially constructed to form a rigid T shape and so arranged that all back thrust from the windows shall be transformed into tension in the transmission line.

The stem of the T shall be pivoted to the 4 in. channel bracket. Of the other two extremities of the T, one shall be pivoted to a malleable iron clamp, securely fastened to the transmission rod, and one shall be pivoted to a steel vent rod (of 1¼x1¼x½ in. angle) in turn pivoted to the flange of the bottom rail of the window. All bearings in the operating arms shall be phosphor bronze.

*Note: Specify either manual or electrical operation.*

### Manual Operation

10. Manual operation power unit shall be operated by a No. 9 Register hand chain passing over a chain wheel mounted on the worm shaft and secured to it by a setscrew. Chain shall be guided by a suitable guard.

*Note: Where building construction makes it impractical to hang the chain directly vertical from the power (as in monitor window installations) single and double chain idlers may be specified (at added cost).*

### Electrical Operation

11. Electrical operation power shall be operated by an electrical power unit operating a sprocket and silent chain. Sprocket shall be mounted on the worm shaft secured to it by a steel key. Electrical unit shall be located beneath the power unit and securely bolted to it.

*Note: Immediately following this specification include specification for Electrical Equipment.*

### Erection (See page 1)

12. All operating devices shall be erected and adjusted to proper working order by the window contractor.

### Painting

13. All operating devices shall have one coat of manufacturer's standard, dark gray paint, oven dried and applied before shipment.

*Note: The following should be provided for in the paint specifications. One coat of red lead and oil should be applied after erection, followed by one or more coats of finishing paint as required.*

## SPECIFICATION FOR ELECTRICAL EQUIPMENT

### Work Included

1. The Operating Device manufacturer shall furnish wiring diagram and complete electrical equipment for Lupton Tension Type Operating Device as hereinafter specified.

### Electrical Equipment

2. **Motors**—Motors shall be of type best adapted to the power equipment, of high torque and ample horsepower.

*Note: The motors for Lupton Tension Type Operating Device operate on A. C., 220 or 440 volts, 60 cycle, 3-phase, and are especially wound for high starting torque. They are furnished from stock, which avoids delay. Motors with other current characteristics require from four to six months to deliver.*

3. **Power Connections**—Motors shall be connected to power by means of sprockets and silent chains.

4. **Reversing Switches**—Standard magnetic reversing switches shall be enclosed in steel boxes and so designed, that the movement of the ventilator either in opening or closing may be stopped or started at any point by manipulation of push buttons.

5. **Limit Switches**—Limit switches shall be positive in action and rigidly attached to the power to form an integral part of the power unit. All limit switches shall be enclosed yet accessible for adjustment so as to positively limit the motion of the ventilator in either direction.

6. **Push Button Stations**—Push button stations "open," "close" and "stop" shall be of rugged construction to withstand

hard usage. Buttons shall be recessed in cover so that they cannot be accidentally operated.

### Electrical Construction

*Note: The following provisions should be made in the Electrical Specifications.*

The Electrical Contractor shall install magnetic reversing switches and push button stations and shall furnish and install safety type, line switches. He shall also furnish all conduit, fittings and wire and do all wiring between the electrical equipment furnished by the Window Operator Manufacturer and that furnished by himself in accordance with the wiring diagram furnished by the Window Operator Manufacturer. All materials and workmanship shall meet the requirements of the National Electric Code and all Local and State Inspection Bureaus.

Conduit shall be galvanized or black enameled, approved by Underwriters' Laboratories, Inc. Wire shall be rubber covered N. E. C. Exposed conduit shall be run in a systematic, slightly manner, paralleled with structural features of the building and rigidly and neatly secured. Where walls are plastered conduit shall be concealed.

The Electrical Contractor shall carry fire, workmen's compensation, and public liability insurance. He shall guarantee his work for a period of one year after completion. Defects in the work and material furnished by him developing during the above named period shall be promptly and satisfactorily made good at his expense.



## LUPTON STEEL INDUSTRIAL DOORS

Lupton's Steel Industrial Doors are built to withstand, successfully, the constant and sometimes rough usage given them in buildings used for industrial purposes. Lupton Doors of this type have been rendering unflinching service during a period of many years, proving beyond question their investment value. Doors are of steel tubing with all joints solidly oxy-acetylene welded to give strength and rigidity and to prevent corrosion of the inside due to entrance of moisture. This method of construction prevents warping or sagging and gives assurance that doors will open and close as easily after a long period of use as when they were first installed.

Lupton Industrial Doors are made in a wide range of sizes and are suitable for exterior or interior use in factories, work shops, forge shops, chemical process buildings, boiler and pump houses, garages, automobile service and repair shops, power houses, warehouses, freight offices and car barns. Equipped with Panic Hardware they are suitable for exit doors in many types of buildings.

Aside from their industrial applications they have been found suitable for use in hospital and school service buildings, in gymnasiums, swimming pool buildings and in dairies.

### SPECIFICATION FOR LUPTON STEEL INDUSTRIAL DOORS

#### Work Included

1. Furnish and install where shown on drawings Steel Industrial Doors, manufactured by DAVID LUPTON'S SONS CO., Philadelphia, Pa.

#### Material and Construction

##### 2. Frames—

*Note: Frames are furnished for swing doors only, and only when specified.*

Frames for swing doors shall be made of 4 in. structural channel. Top corners shall be bolted together by means of clips. Jambs to be braced at bottom by structural angles to preserve square lines of frame during shipment.

3. Doors made of  $1\frac{1}{2} \times 2\frac{5}{8}$  in. tube shall have  $1\frac{1}{2} \times 1\frac{1}{2}$  in. structural channel stops at head and jambs.

Doors of larger tubing shall have stops of  $1\frac{1}{2} \times 1\frac{1}{2}$  in. channel at head and of  $1\frac{1}{2} \times 1\frac{1}{2}$  in. structural angle at jambs. Stops shall be attached to frames with round head drive screws not over 9 in. on centers.

4. Anchors of  $\frac{3}{8}$  in. steel plate bent in Z shape shall be attached to jambs of frame not over 3 ft. 0 in. on centers.

5. Doors up to and including those 10 ft. 0 in. in height shall have rails and stiles of  $1\frac{1}{2} \times 2\frac{5}{8}$  in. x 14 gauge welded steel tubing.

6. Doors over 10 ft. 0 in. in height shall have rails and stiles of 3x2 in. x 14 gauge welded steel tubing.

7. Rails and stiles shall be mitered at corners—welded and ground flush.

8. All doors shall have a 14 gauge steel panel insert in the lower part of the door and standard rolled steel window glazing panel in the upper portion, both panels to be attached to the rails and stiles by sheet metal screws.

9. Astragals for double doors shall be 14 gauge steel plate.

#### Hardware

10. Hinges for swing doors made of  $1\frac{1}{2} \times 2\frac{5}{8}$  in. tube shall be Stanley ball bearing butts. Three hinges for doors up to and including those 8 ft. 0 in. high, four hinges for doors over 8 ft. 0 in. high.

11. Hinges for swing doors made of 3x2 tube shall be Allith-Prouty strap hinges. Three per leaf.

12. Track, track brackets and roller bearing trolleys shall be furnished for slide doors.

*Note: Locks, bolts, latches, door stops and stay rollers should be listed here if required. See next page.*

*Butt Hinges are manufactured by Stanley Hardware Co., and locks are manufactured by Sargent. Other hardware is manufactured by Allith-Prouty Co. All hardware wherever possible is fitted in the factory and shipped unattached, except in the case of single hinged doors with frames where frame, door and hinges are shipped assembled together.*

#### Erection

13. Lupton Steel Industrial Doors shall be erected by (state by whom) in accordance with details furnished by door manufacturer. Frames for swing doors shall be set plumb and square and securely anchored to the building construction. Slide doors shall be hung from tracks securely fastened to building construction. They shall be adjusted to give satisfactory operation. Hardware shall be applied according to door manufacturer's directions.

*Note: See page 1.*

*Note: Where slide doors are hung outside on exterior wall flashing is required. This flashing is not supplied by Lupton.*

#### Painting

14. All doors shall receive one shop coat of door manufacturer's dark gray paint, oven dried.

*Note: See page 1.*

#### Glass and Glazing

15. Glazing stops of  $\frac{1}{2} \times \frac{5}{8}$  in. rolled steel angle section shall be furnished, shipped attached.

*Note: (See also page 1.) Specify glass and glazing under proper heading elsewhere in specifications.*

(a) Do not specify single thickness glass.

(b) Specify high-grade steel window putty (ordinary wood sash putty must not be used).

(c) Specify that Lupton Steel Industrial Doors shall be glazed from the inside; that the glass shall be set in a bed of putty and held by Lupton Glazing angle-stops.



## LUPTON STEEL INDUSTRIAL DOORS (Continued)

### Sizes and Types

Door units are made in standard and stock sizes and types as illustrated on next page. The shaded units are carried in stock for quick delivery.

Door units are used interchangeably as swing or slide doors. The sizes given on next page are opening dimensions and are less for slide doors than for swing doors to provide overlap at head and jambs.

### Large Doors

Where doors larger than 10x10 ft. are required, it is economical to use, if possible, doors of the following dimensions:

### Swing Doors

Single doors, widths.....3 ft. 3 ft. 6 in. 4 ft. 5 ft. 6 ft.  
Double doors, widths.....6 ft. 7 ft. 8 ft. 10 ft. 12 ft.  
*Heights of Single and Double Swing Doors of Any Width Listed Above*  
11 ft. 12 ft. 13 ft. 14 ft. 15 ft.

### Slide Doors

Single doors, widths...2 ft. 10 in. 3 ft. 4 in. 3 ft. 10 in. 4 ft. 10 in. 5 ft. 10 in.  
Double doors, widths...5 ft. 10 in. 6 ft. 10 in. 7 ft. 10 in. 9 ft. 10 in. 11 ft. 10 in.  
*Heights of Single and Double Slide Doors of Any Width Listed Above*  
10 ft. 10½ in. 11 ft. 10½ in. 12 ft. 10½ in. 13 ft. 10½ in. 14 ft. 10½ in.

### Ordering

Always use standard or stock sizes for lower cost and quicker delivery. Designs and sizes must be ex-

actly as shown in size diagrams and details on following pages, otherwise doors are special.

Note that frames are furnished for swing doors only and only for doors 10x10 ft. or less in size. Single doors with frames are shipped assembled with frames. Double doors with frames are assembled in factory for inspection and then taken apart for shipment.

Glass is not included with doors but glazing angles are furnished shipped attached.

In ordering be sure to give following information:

1. Size and quantity (use Opening Size as shown on Plate R-1).

2. State whether doors are swing or slide, open in or open out, right hand, left hand or double. (See key for hand of doors on pages 108 and 109.)

3. Specify frames for swing doors if they are wanted. (Frames are not furnished for slide doors or for doors over 10x10 ft.)

4. Specify whether Flat Steel Latch or Mortise Lock is desired.

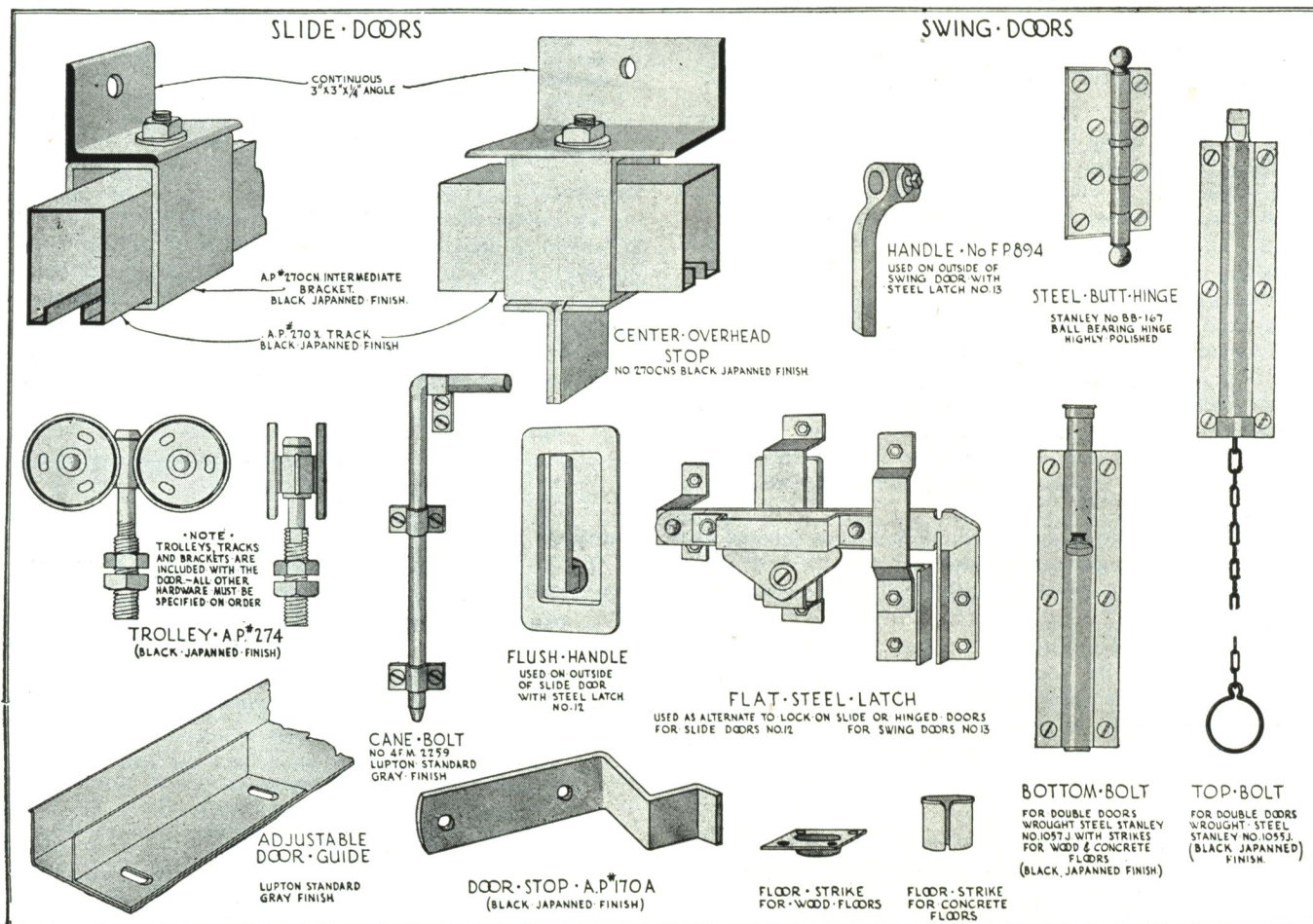
(If mortise lock is specified, state whether one cylinder and thumb latch, or two cylinders are required and if cylinders are to be master keyed.)

5. Specify any special hardware required such as door checks, panic hardware or bronze butts.

### HARDWARE

Standard hardware is shown in illustration. Mortise cylinder locks are not shown but can be furnished when specified for single or double, swing or slide doors. Locks can be equipped with either one cylinder and thumb latch, or two cylinders. Cylinders can be master keyed. When specified doors can be equipped with

Sargent Door Checks and Von Duprin Panic Hardware. Doors more than 10x10 ft. are equipped with Allith Prouty Strap Hinges. Wherever possible, hardware is fitted in factory and shipped unattached; except in case of single swing doors in frames. In this case door, frame and hinges are shipped assembled together.





## SINGLE DOORS ~ SWING &amp; SLIDE

| OPENING SIZES |            | SWING DOORS → | 2'-6"                                                                             | 3'-0"                                                                             | 3'-6"                                                                             | 4'-0"                                                                               | 5'-0"                                                                               |
|---------------|------------|---------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|               |            | SLIDE DOORS → | 2'-4"                                                                             | 2'-10"                                                                            | 3'-4"                                                                             | 3'-10"                                                                              | 4'-10"                                                                              |
| SWING DOOR    | SLIDE DOOR | GLASS SIZE    | 11 3/4"                                                                           | 14 3/4"                                                                           | 11 3/4"                                                                           | 13 3/4"                                                                             | 13 1/4"                                                                             |
| 7'-0"         | 6'-10 1/2" | 16"           |  |  |  |  |  |
| 7'-6"         | 7'-4 1/2"  | 19"           |  |  |  |  |  |
| 8'-0"         | 7'-10 1/2" | 22"           |  |  |  |  |  |
| 10'-0"        | 9'-10 1/2" | 34"           |  |  |  |  |  |

## DOUBLE DOORS ~ SWING &amp; SLIDE

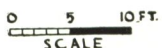
| OPENING SIZES |            | SWING DOORS → | 5'-0"                                                                               | 6'-0"                                                                               | 7'-0"                                                                                | 8'-0"                                                                                 | 10'-0"                                                                                |
|---------------|------------|---------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|               |            | SLIDE DOORS → | 4'-10"                                                                              | 5'-10"                                                                              | 6'-10"                                                                               | 7'-10"                                                                                | 9'-10"                                                                                |
| SWING DOOR    | SLIDE DOOR | GLASS SIZE    | 11 3/4"                                                                             | 14 3/4"                                                                             | 11 3/4"                                                                              | 13 3/4"                                                                               | 13 1/4"                                                                               |
| 7'-0"         | 6'-10 1/2" | 16"           |  |  |  |  |  |
| 7'-6"         | 7'-4 1/2"  | 19"           |  |  |  |  |  |
| 8'-0"         | 7'-10 1/2" | 22"           |  |  |  |  |  |
| 10'-0"        | 9'-10 1/2" | 34"           |  |  |  |  |  |

**Dealer Stock Doors**—Doors shown shaded are dealer stock doors.

**Dimensions**—Dimensions given above are opening dimensions.

See plates R-2 and R-3 for measure points.

**Large Doors**—Doors larger than those shown above are made of larger tubing. See page 106 for sizes.

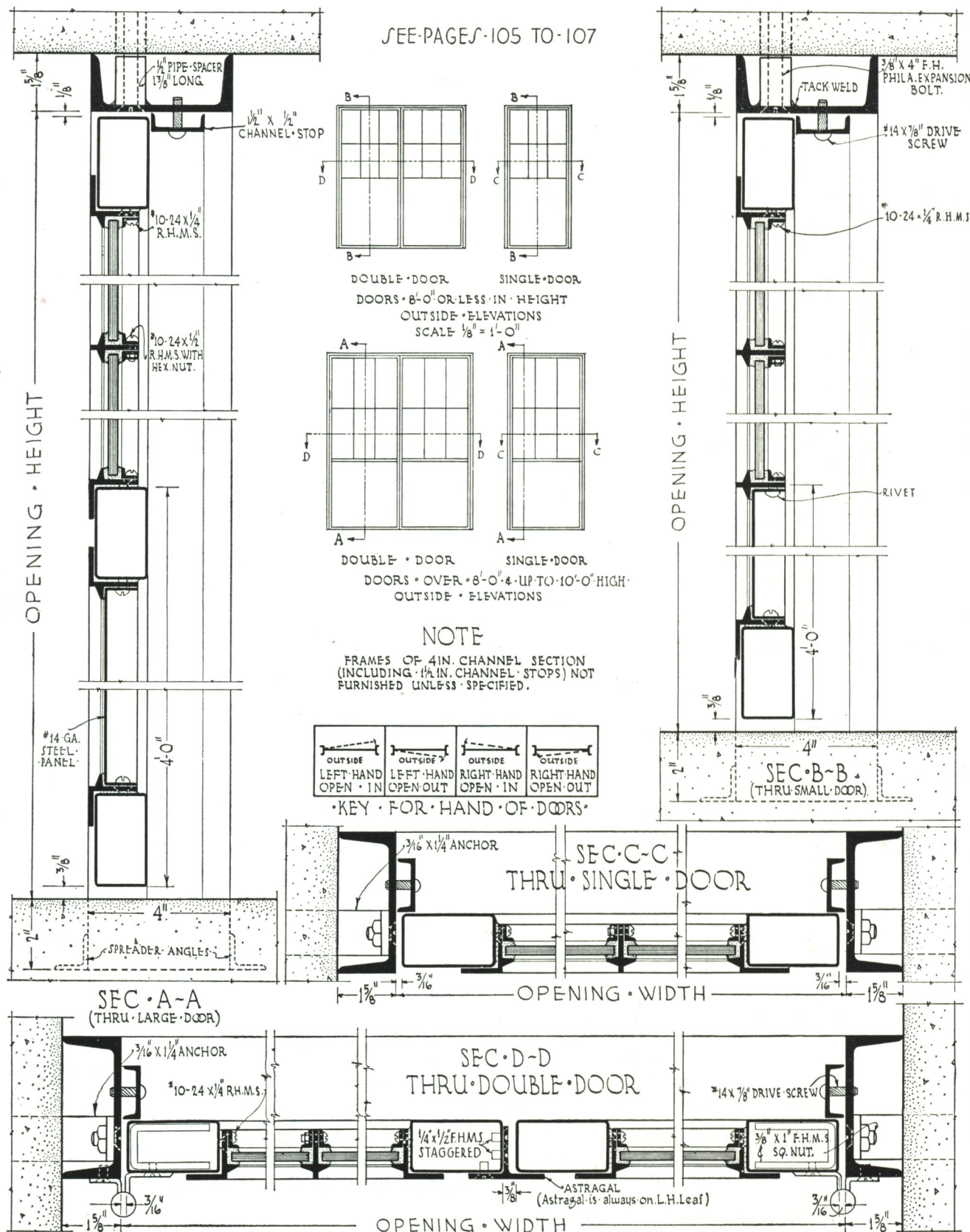


LUPTON STEEL INDUSTRIAL DOORS  
STANDARD TYPES & SIZES

PLATE NO.  
R-1  
AUGUST - 1930



SEE PAGES 105 TO 107



• LUPTON • STEEL • INDUSTRIAL • DOORS •  
• DETAILS • OF • SWING • TYPE •

PLATE • NO.

R-2

AUGUST 1930







## LUPTON AIRPLANE HANGAR DOORS

These doors are built by skilled workmen to satisfy the exacting requirements of the airplane industry. Made in two types, Straight Slide Type and Around-the-Corner Type.

**Sizes**—Standard opening heights range from 12 to 30 ft. Larger doors of the same design can be furnished when required.

Width of a door unit is approximately 10 ft. Hinged end units for use with around-the-corner doors, are approximately 4 or 5 ft. as required. It is desirable to make the total width of opening some multiple of 10 ft. (40, 50, etc.)

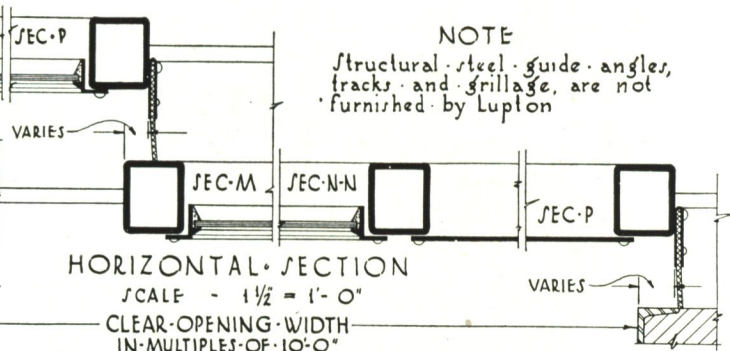
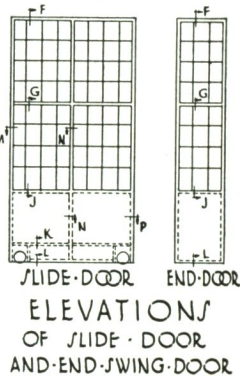
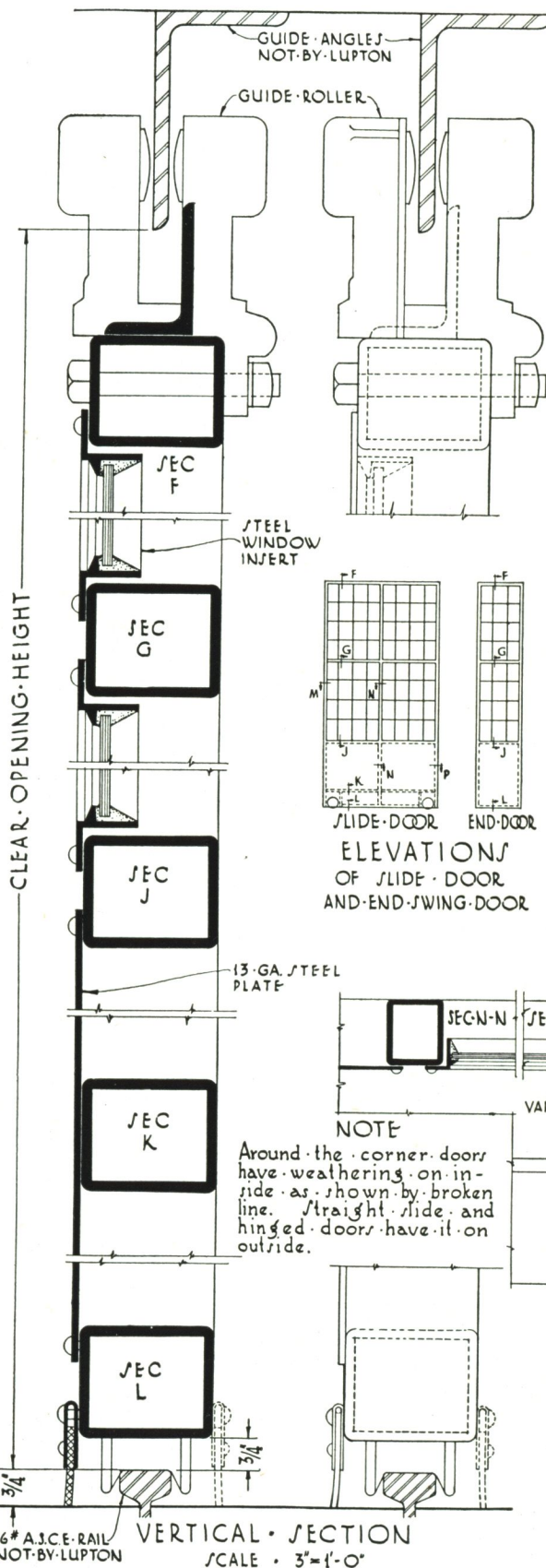
**Construction**—Doors are made of steel tubing (shown in detail) or structural steel channel as specified. All joints between frame members are solidly welded and the exposed part of the weld ground flush.

**Glazing**—Glazing panels are glazed inside with putty. Glass is held by steel wire glazing clips.

**Pilot or Pass Doors**—Pilot doors are provided where required. They are made of  $1\frac{1}{2} \times 2\frac{5}{8}$ -in. steel tubing and are equipped with cylinder locks.

**Hardware**—Weight of door is carried on two bottom rollers running on 16 lb. A.S.C.E. rails. Doors are guided at top by two double rollers bearing on a structural steel angle. Bottom rollers have Timken bearings and Alemite fittings for lubrication. A ball thrust bearing is used to pivot rollers for around-the-corner doors.

Cane bolts are furnished for slide doors and drop into holes drilled in track. Cremona bolts are furnished for locking hinged end doors. Bumpers at top and bottom of door are furnished at ends of tracks. Travel of doors is limited by stops at top of door. Slide doors have pull handles for convenience in operation.



| CONSTRUCTION                             | CLEAR-OPENING HEIGHT | CENTER TO-CENTER OF-TRACK |
|------------------------------------------|----------------------|---------------------------|
| $2\frac{1}{2} \times 2\frac{1}{2}$ -TUBE | 12'-0" TO 18'-0"     | $5\frac{1}{4}$ "          |
| 3"-CHANNEL                               | 12'-0" TO 18'-0"     | 6"                        |
| $3 \times 2\frac{1}{2}$ -TUBE            | 18'-6" TO 22'-0"     | 6"                        |
| 4"-CHANNEL                               | 18'-6" TO 22'-0"     | 7"                        |
| $4 \times 2\frac{1}{2}$ -TUBE            | 22'-6" TO 30'-0"     | 7"                        |
| 5"-CHANNEL                               | 22'-6" TO 30'-0"     | 8"                        |



# LUPTON STEEL COMMERCIAL DOORS

Lupton Commercial Doors are designed for use as exterior or interior doors for garages, manufacturing plants, etc., where inexpensive steel doors are desirable. Lighter in construction than Industrial Doors they are, within their size limits, a practical and economical product.

**Sizes**—Doors are made only in stock sizes shown at right.

**Construction**—Stiles and rails are made of 18 gauge steel, mitered and welded at corners of door and the welds ground flush. The lower part of door has a 16 gauge steel panel and the upper part is made to receive glass.

**Frames**—Frames are furnished for swing doors only and only when specified. They are made of steel plate. Flat steel anchors are provided at jambs and an expansion bolt at head.

**Hardware**—All necessary hardware (shown below) is included with doors except Hook Back No. 101 which must be specified if required. In ordering swing doors specify whether Mortise Lock or Lever Latch is desired.

**Erection**—(See page 1) Door frames must be set plumb and square, securely anchored to building. Tracks for slide doors must be level and anchored securely.

Swing doors are drilled in shop for hinges and when Lock No. 97 is ordered doors are mortised and drilled to receive it. All other drilling must be done in field.

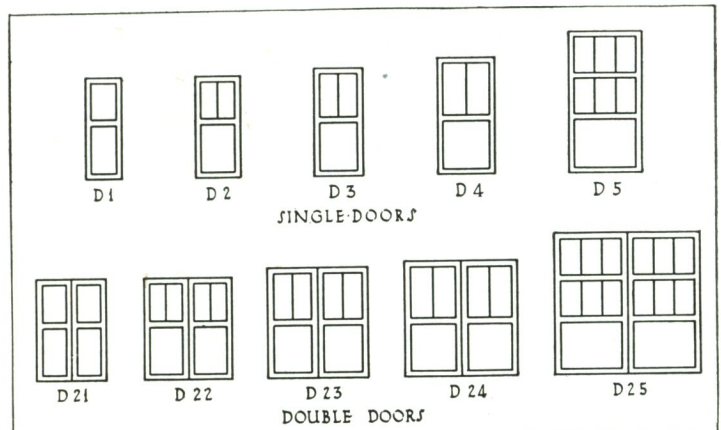
Single doors with frames are shipped assembled in frames. Double doors are shipped separately from frames.

**Glazing**—(See page 1) See table at right for glass sizes. Orders for doors do not include glass, but steel glazing stops are furnished, shipped attached. Always use steel window putty and glaze after doors are erected.

**Painting**—(See page 1).

**Ordering**—When ordering give the following information:

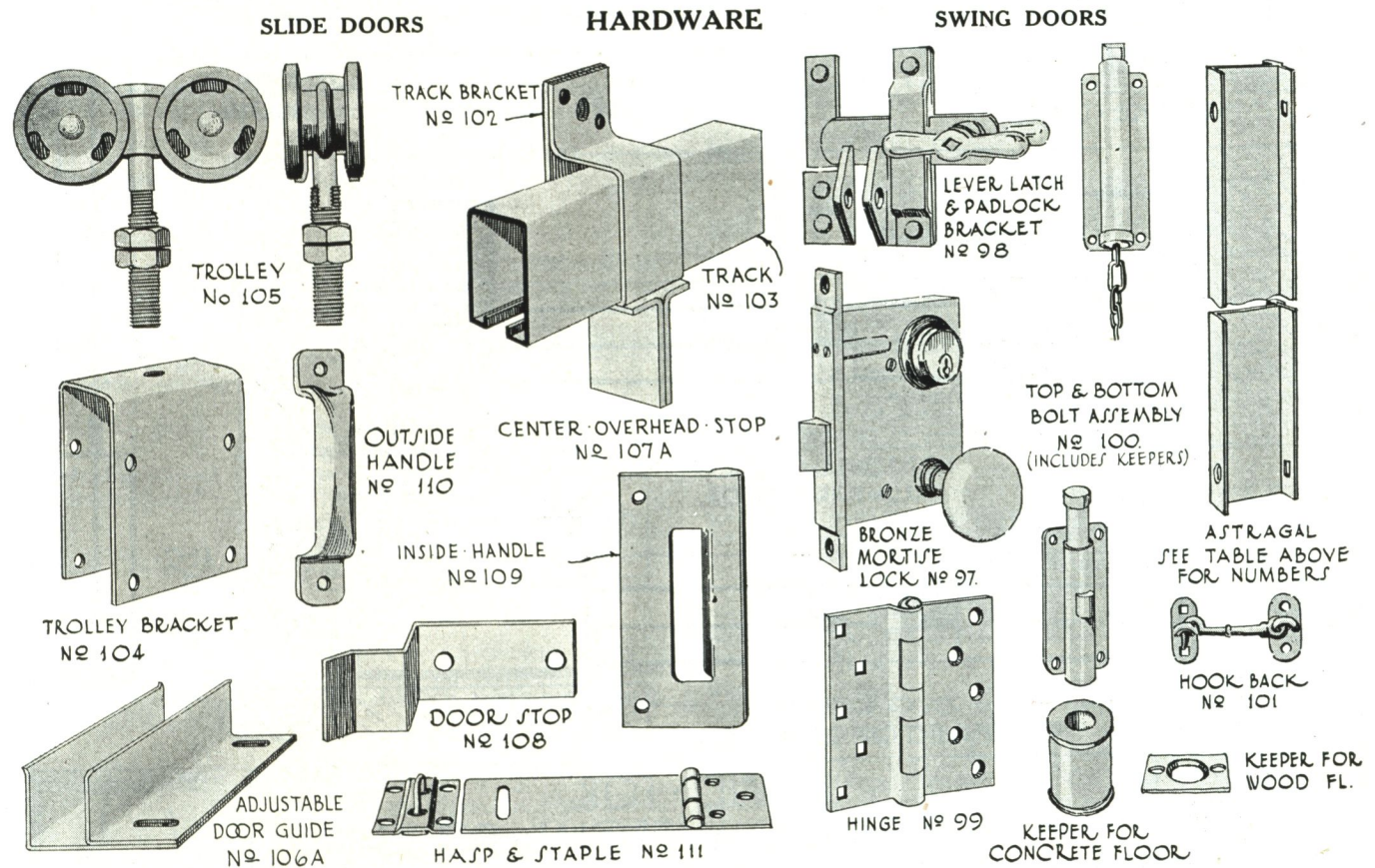
1. Symbol numbers of doors required (D-1, D-2, etc.).
2. Quantity of each type required.
3. Whether doors are to swing or slide and whether right or left hand. (See "Key for Hand of Doors" on next page.) If swing doors are ordered state also,
  - a. Type of lock desired (No. 97 or No. 98).
  - b. If frames are required, give Door Frame Marks (see table at right).
  - c. Whether or not Hook Backs are required.



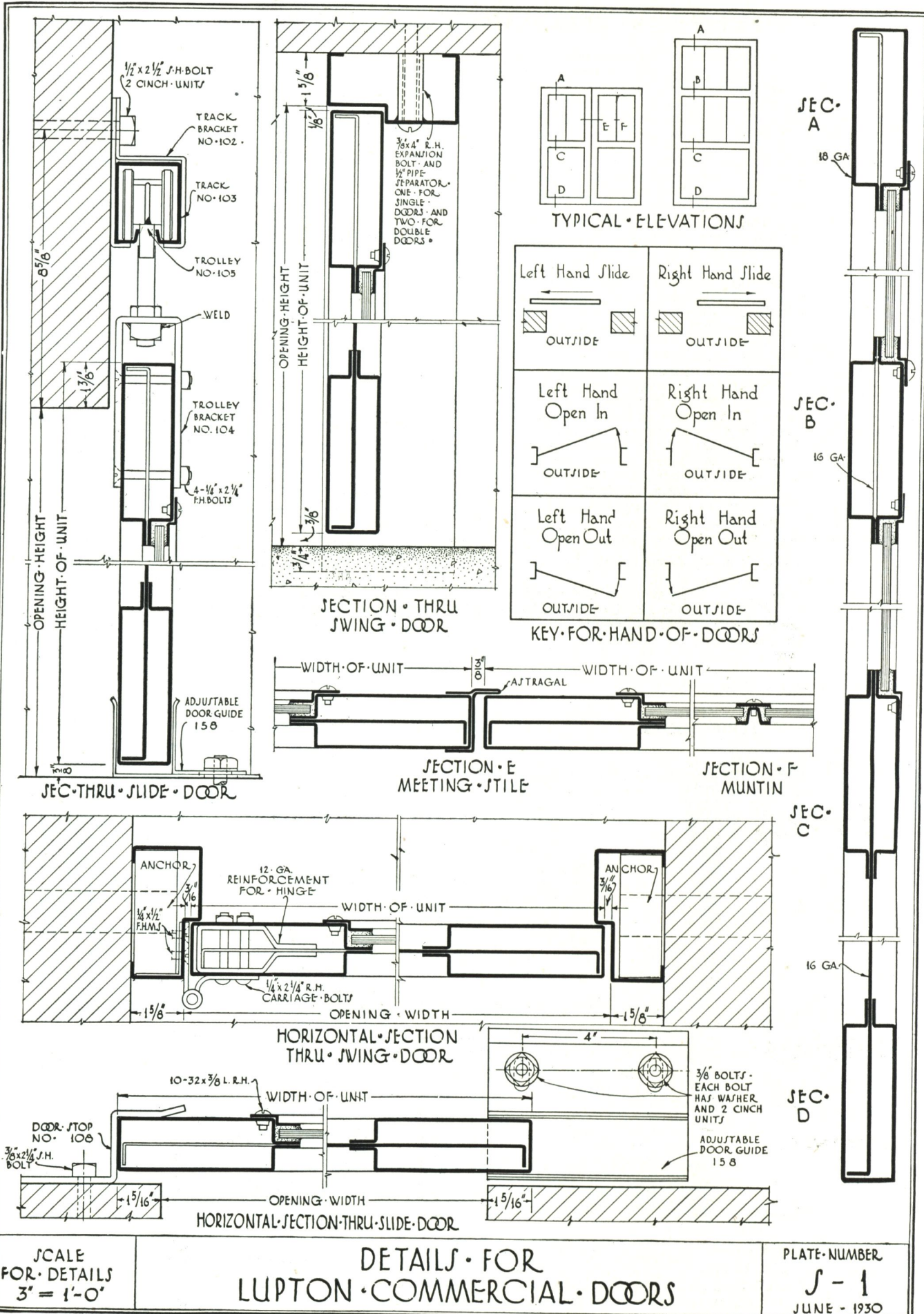
STANDARD SIZES

| SLIDE TYPE |                 |               |                | SWING TYPE    |                |                         |                         | GLASS SIZES          |
|------------|-----------------|---------------|----------------|---------------|----------------|-------------------------|-------------------------|----------------------|
| DOOR MARK  | DOOR FRAME MARK | OPENING WIDTH | OPENING HEIGHT | OPENING WIDTH | OPENING HEIGHT | CATALOG NO. OF ASTRAGAL | CATALOG NO. OF ASTRAGAL |                      |
| D-1        | DF-1            | 2'-3"         | 6'-10 1/2"     | 2'-6"         | 7'-0"          |                         |                         | 1-19 7/8" X 30 1/2"  |
| D-2        | DF-2            | 2'-9"         | 6'-10 1/2"     | 3'-0"         | 7'-0"          |                         |                         | 2-12 5/8" X 30 1/2"  |
| D-3        | DF-3            | 3'-3"         | 7'-4 1/2"      | 3'-6"         | 7'-6"          |                         |                         | 2-15 5/8" X 36 1/2"  |
| D-4        | DF-4            | 3'-9"         | 7'-10 1/2"     | 4'-0"         | 8'-0"          |                         |                         | 2-18 5/8" X 42 1/2"  |
| D-5        | DF-5            | 4'-9"         | 9'-10 1/2"     | 5'-0"         | 10'-0"         |                         |                         | 6-16 1/4" X 30 3/4"  |
| D-21       | DF-21           | 4'-9"         | 6'-10 1/2"     | 5'-0"         | 7'-0"          | *2392                   |                         | 2-19 7/8" X 30 1/2"  |
| D-22       | DF-22           | 5'-9"         | 6'-10 1/2"     | 6'-0"         | 7'-0"          | *2392                   |                         | 4-12 5/8" X 30 1/2"  |
| D-23       | DF-23           | 6'-9"         | 7'-4 1/2"      | 7'-0"         | 7'-6"          | *2393                   |                         | 4-15 5/8" X 36 1/2"  |
| D-24       | DF-24           | 7'-9"         | 7'-10 1/2"     | 8'-0"         | 8'-0"          | *2394                   |                         | 4-18 5/8" X 42 1/2"  |
| D-25       | DF-25           | 9'-9"         | 9'-10 1/2"     | 10'-0"        | 10'-0"         | *2395                   |                         | 12-16 1/4" X 30 3/4" |

Standard, Stock Sizes and Types









# CORRUGATED WIRE GLASS BY LUPTON

## For Sidewalls, Roofs and Skylights

Corrugated Wire Glass is a translucent material which, if used as a covering for skylights, roofs and sidewalls, has definite advantages.

It transmits a finely diffused light with minimum glare and shadow.

It is easily erected and completely weatherproof.

Because of its corrugations it develops greater strength under uniform loading and greater resistance to vibration and temperature changes than any other type of sheet glass of equal thickness.

No skylight bars are used. The glass carries the load directly to purlins and curbs.

Maintenance cost is low because there are no bars to rust or corrode, breakage is practically eliminated and the corrugations permit rain to clean the glass.

It meets every requirement of the National Board of Fire Underwriters for fire retardment.

Corrugated Wire Glass is often used as a covering for the entire roof area of a building. It is readily applied to single or double pitch roofs, connected directly to any type roof covering. It can be used for sawtooth roofs, back slopes

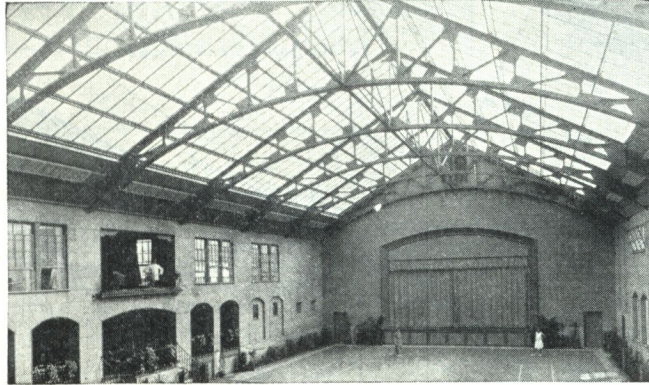
of Lupton V-type roof, sidewalls, marquees and canopies.

**Installation Details**—Details covering the more common types of installation appear on following pages. A folder containing additional roof details, details for Canopy and Marquise, Sidewall Construction and application of Roof Ventilators will be sent on request.

*Note:* Details are typical and are meant to indicate method of attaching glass to roof or framework. Sizes of curbs shown are minimum for satisfactory glass bearing. Supporting structure must be designed with adequate strength in each specific case.

**Draining Condensation**—Two methods of draining condensation are shown on page 118. The usual condensation gutters can be used; or drainage tubes can be provided, placed at the bottom of each corrugation under the felt separating the two sheets of glass and under the special sealing strip at the lower curb. Tubes conduct condensation to outside of roof.

**Actinic Glass**—Actinic glass excludes much of the sun's radiant heat, thus reducing the summer temperature under the glass. Its use is sometimes advisable where glass is to cover large areas.



Indoor Tennis Court of Mrs. H. E. Talbot, Dayton, Ohio  
PEABODY, WILSON & BROWN, Architects

## SPECIFICATION FOR INSTALLATION OF CORRUGATED WIRE GLASS

### Work by Others

1. All supporting frames, curbs, purlins, ridge-beams, tie-rods and bracing for proper construction shall be provided under another contract.
2. All roofing, curb and roof flashings, gutters and counter-flashings shall be provided under another contract.

### Work Required

3. The work to be done under this contract includes the furnishing of all labor, materials, equipment and services necessary for, and reasonably incidental to, the erection of (White or Actinic—specify which) Corrugated Wire Glass (in Skylights or Side-Wall Panels), as manufactured by the Pennsylvania Wire Glass Company with

|                                         |   |                                                                   |
|-----------------------------------------|---|-------------------------------------------------------------------|
| Standard fittings of<br>(specify which) | { | 18 oz. cold rolled copper                                         |
|                                         |   | 24 gage galvanized steel (copper bearing) (painted with aluminum) |
|                                         |   | 13 gage zinc                                                      |
|                                         |   | No. 3S8 aluminum (.032 in. thick)                                 |
|                                         |   | 24 gage "Lead Sealed" steel                                       |
|                                         |   | 6 lb. Hoyt Hard Lead                                              |

as shown on the drawings and herein specified.

### Shop Drawings

4. This Contractor shall furnish the (Architects, Engineers, Purchasers) for their approval before any of the work is executed, complete shop drawings conforming to the recommendation of the Manufacturer.

### Construction and Erection

5. This Contractor shall erect the Corrugated Wire Glass exactly as prescribed in the approved drawings and recommendations of the Pennsylvania Wire Glass Company.

*Note:* While the specification clause above will cover the erection of Corrugated Wire Glass, under the heading of "Notes" below, there are several clauses which may be included where deemed necessary.

### Notes

6. No sheet of Corrugated Wire Glass shall exceed 27¾ in. in width, and no single sheet shall span more than 60 in. clear opening (up the slope) without an intermediate support. Where glass is set at an angle of 60 degrees, or more, from the horizontal, the maximum clear span may extend to 96 in. (up the slope). Corrugated Wire Glass covering openings greater than those mentioned must have an intermediate support or arrangements must be made to use two or more lights of glass.

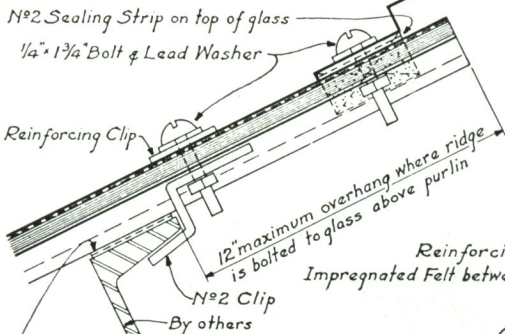
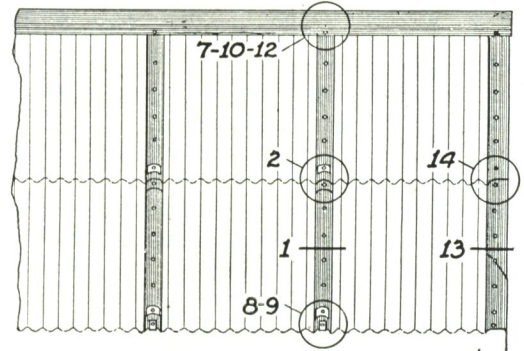
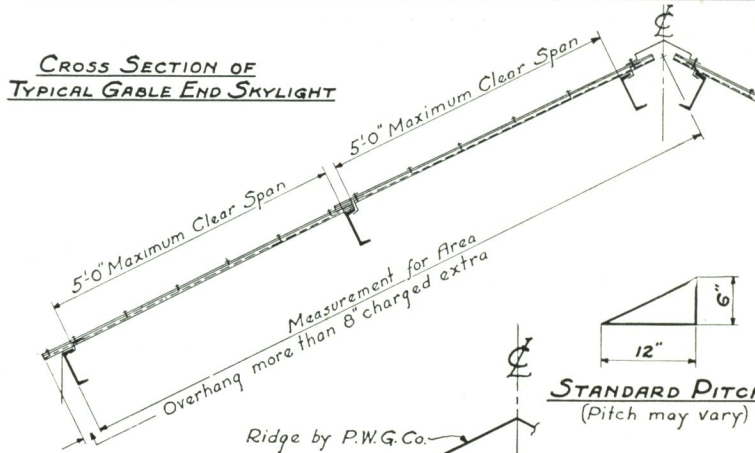
7. The sheets of glass shall be laid edge to edge (not lapping) with ½ in. spaces between the sheets and the open joints so formed shall be covered with exterior metal cover caps and metal inner strips which conform to the corrugations of the glass. The exterior cover caps shall have an asphaltic lining. The caps and inner strips, to complete the joint, shall be bolted together by bolts passing through the caps and inner strips and between the sheets of glass approximately 9 in. center to center.

8. Where structural steel supports occur, clips, engaged by bolts passing through the cover caps, shall be used to hold the glass securely in place. Wherever wood supports occur lag screws shall be used in place of clips.

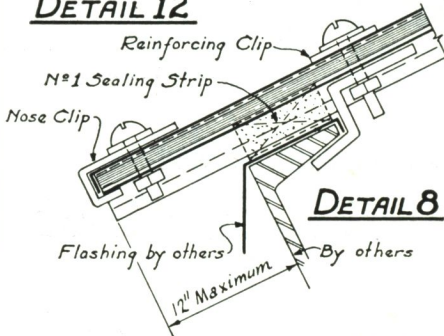
9. Each light of glass shall have a firm, even bearing and wherever any sheet of glass is applied to structural work (such as curbs, purlins, etc.) or where it laps over other glass, it shall be cushioned with impregnated felt or asphalt strip. At the bottom (or eaves) of Corrugated Wire Glass construction and at the top (in conjunction with the ridge or flashings) the openings caused by the corrugations of the glass shall be filled with a sealing strip especially designed and supplied for this purpose.



**CROSS SECTION OF  
TYPICAL GABLE END SKYLIGHT**

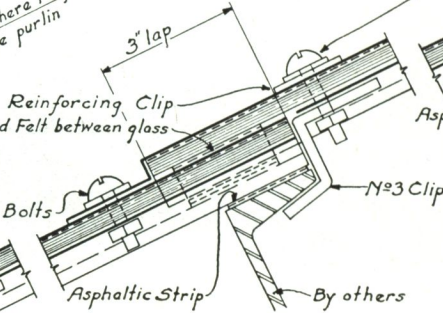


**DETAIL 12**

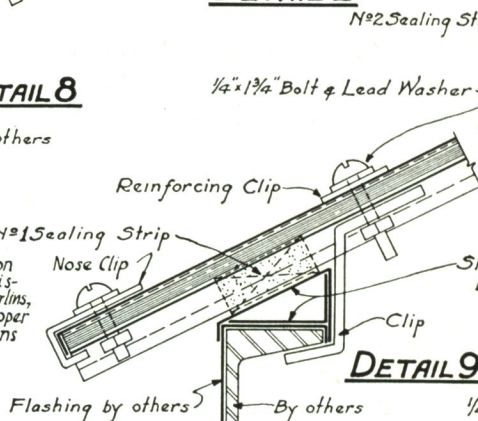


**DETAIL 8**

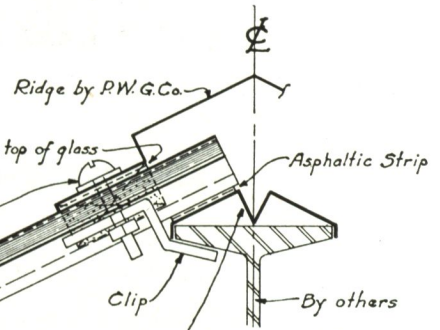
NOTE: The supporting construction shown on this drawing is of minimum size for satisfactory glass bearing, the size of curbs, purlins, ridge-beams, tie-rods and bracing for proper construction must be clearly stated in plans and specifications for the building.



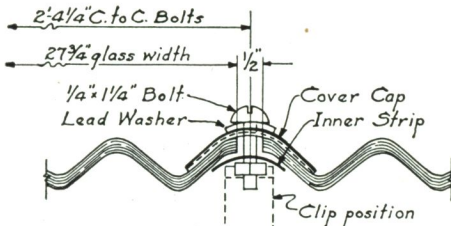
**DETAIL 2**



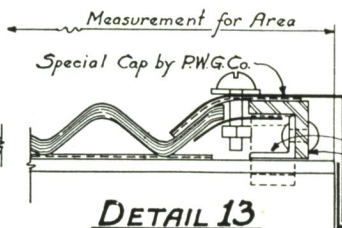
**DETAIL 9**



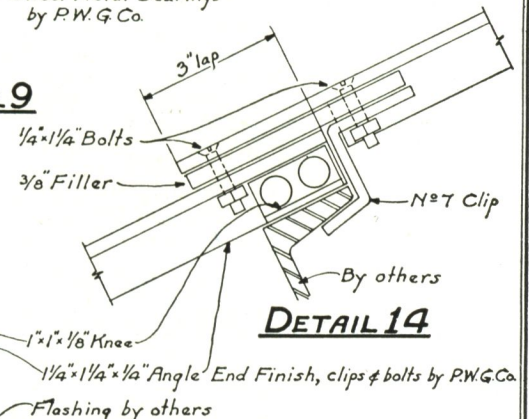
**DETAIL 10**



**DETAIL 1**



**DETAIL 13**



**DETAIL 14**

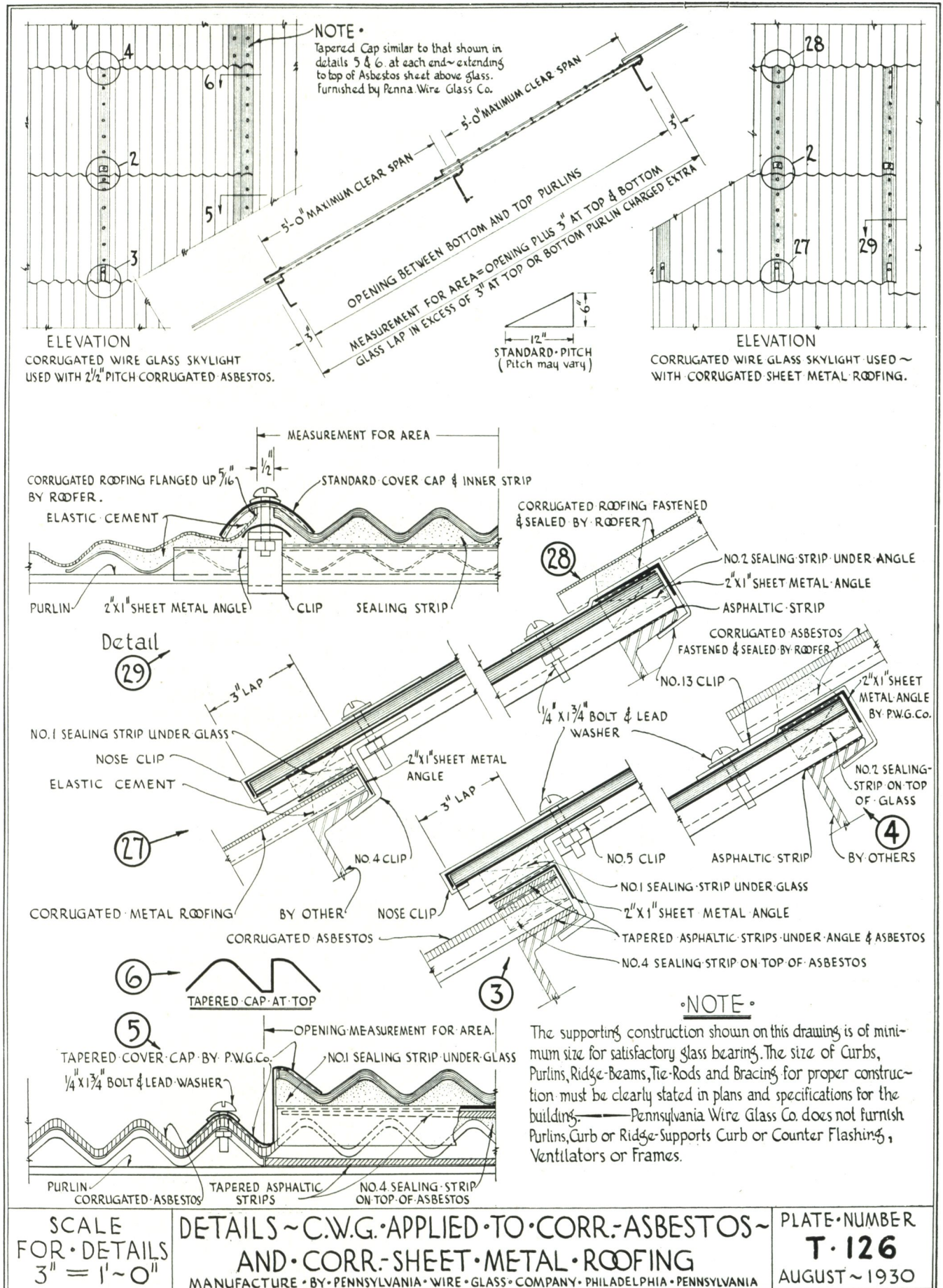
NOTE-PaWIRE GLASS Co. DOES NOT FURNISH PURLINS, CURB OR RIDGE SUPPORTS, CURB OR COUNTER FLASHINGS, VENTILATORS OR FRAMES.

SCALE  
FOR DETAILS  
3" = 1' - 0"

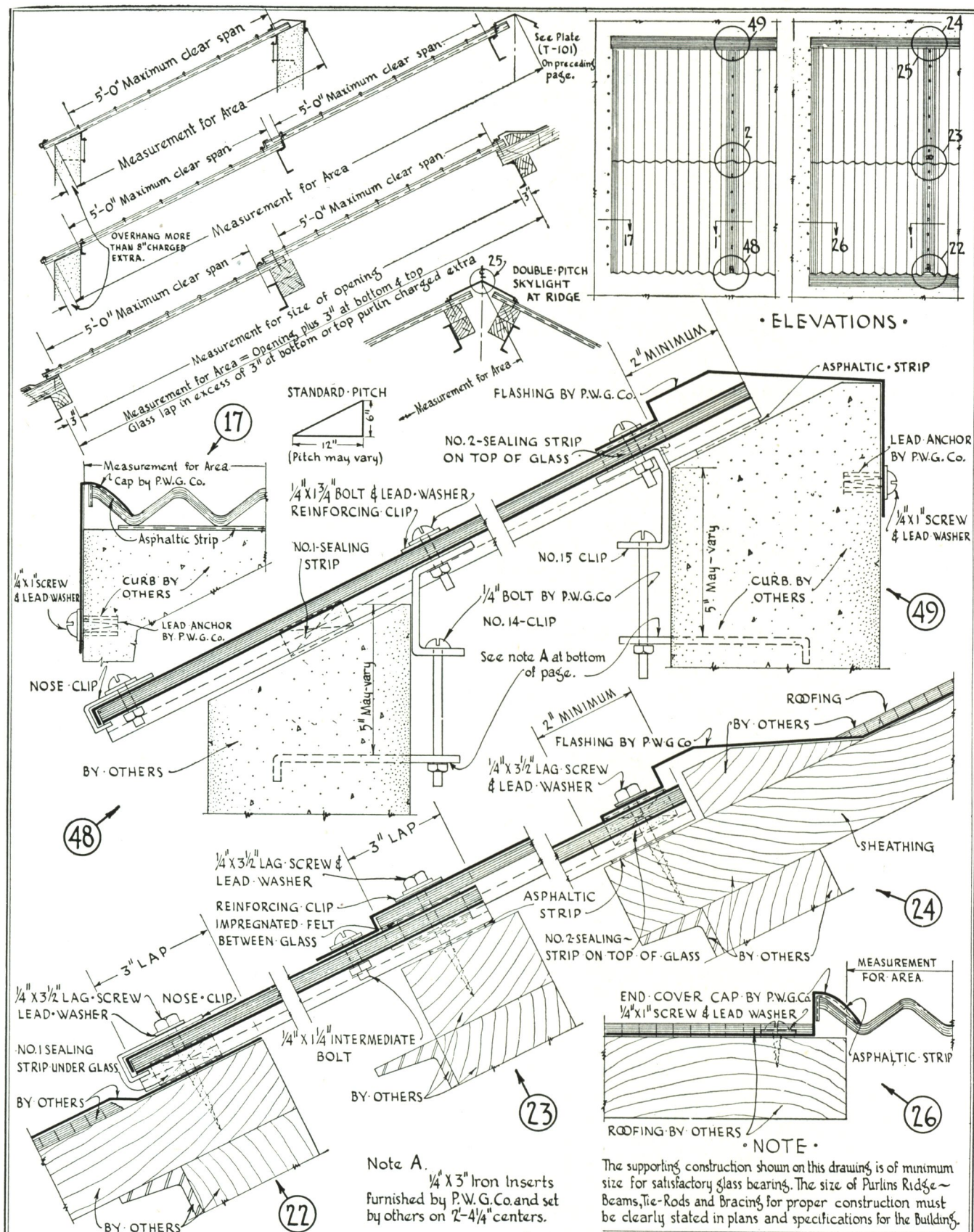
DETAILS OF CORRUGATED WIRE GLASS SKYLIGHTS  
WITH GABLE END STEEL FRAMES  
MANUFACTURED BY PENNSYLVANIA WIRE GLASS COMPANY PHILADELPHIA PA.

PLATE NUMBER  
T-101  
NOVEMBER 1929









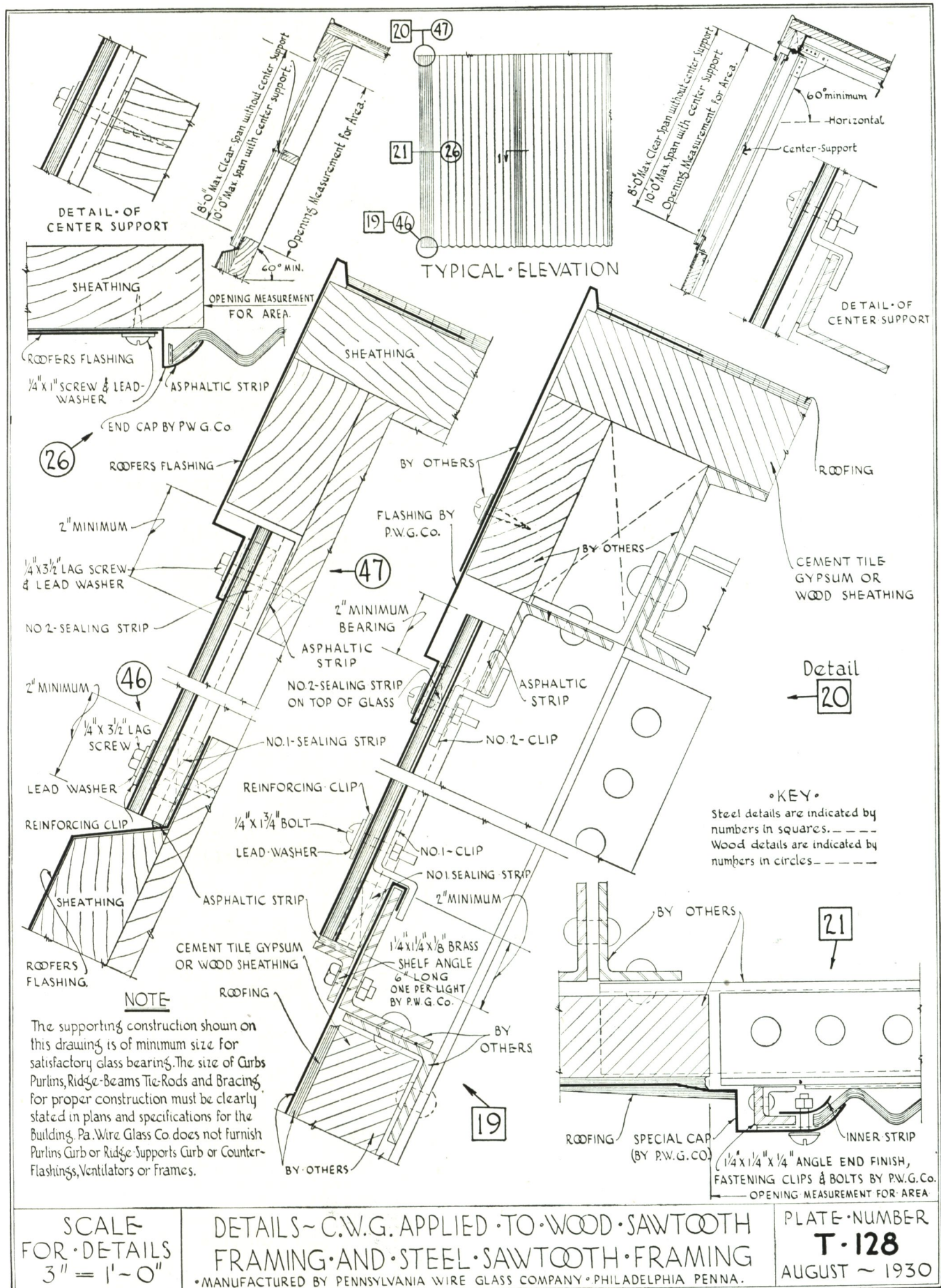
SCALE  
FOR DETAILS  
3" = 1'-0"

DETAILS ~ C.W.G. APPLIED TO CONCRETE  
CURBS AND WOOD SHEATHED ROOF.

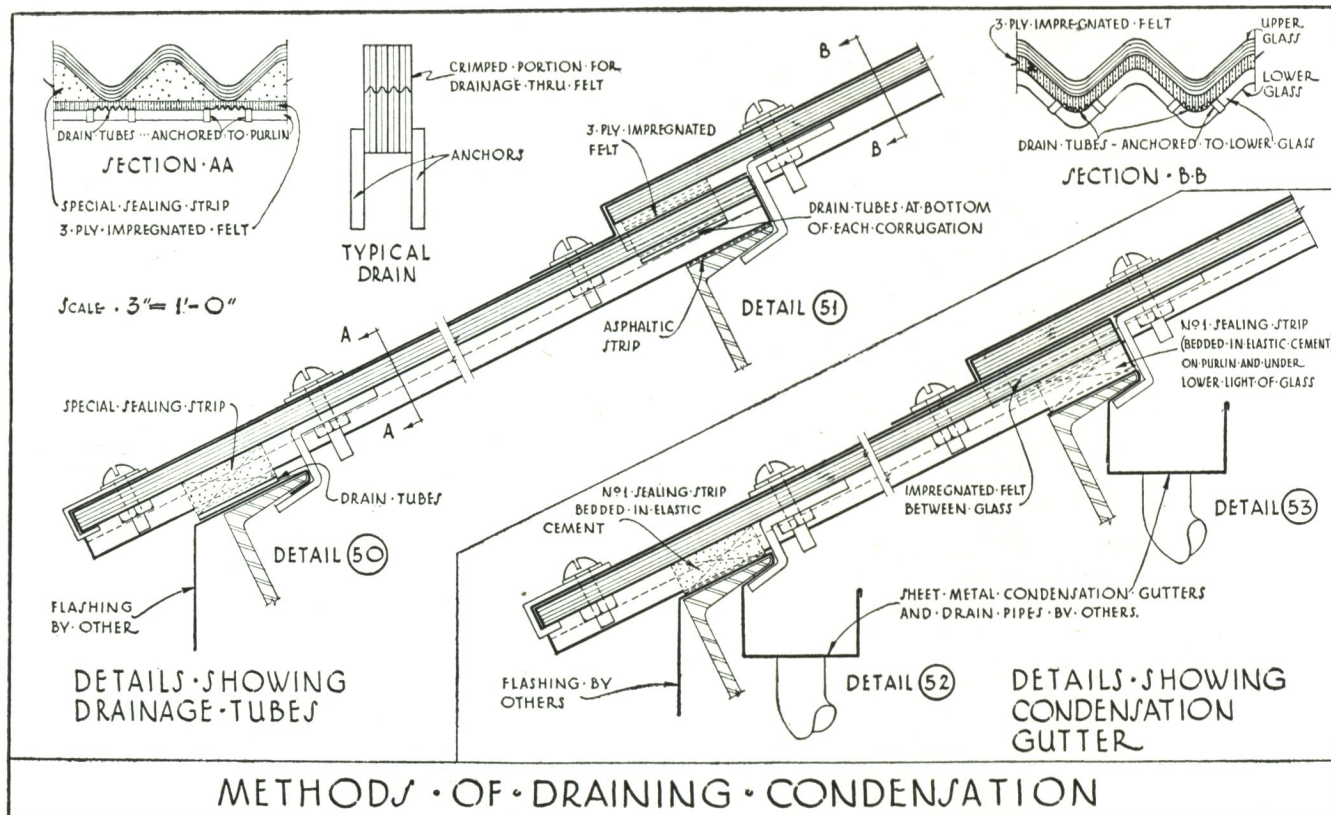
MANUFACTURED BY PENNSYLVANIA WIRE GLASS COMPANY PHILADELPHIA PENNA.

PLATE NUMBER  
**T-127**  
AUGUST ~ 1930









## LUPTON C. W. G. SKYLIGHTS IN STANDARD SIZES

When skylights of C. W. G. are required there is an advantage in using, if possible, one of the standard sizes shown on the two following pages.

Standard size skylights require the least amount of time for delivery and erection. Shipment can be made from Dunbar, Pa., within a few days after we receive the order with complete information.

### Material Supplied by Lupton

Sketch below shows the material supplied by Lupton for a Standard Skylight. It consists of glass (white or actinic as specified), flashing for upper curb, caps, bolts, clips, sealing strips and elastic cement. Setting instructions are packed in each crate. (Lupton will quote a price on erection if requested.)

### Work by Builder

**Wood Curbs**—Skylights of the types shown on following two pages are usually applied to wood curbs and this is the type of construction shown in the details. The curbs must not be less than 2 in. thick, but the height of the curb or its length may require greater thickness or the use of tie rods or braces, to make curbs rigid and strong. A center purlin is required for Type B skylight.

The roofing material can be carried up the side and back and our top flashing and end caps will cover it. At the front or low curb, the roofing can be carried over the curb and no flashing is

necessary. It is important that the construction be watertight. A cricket or gusset may be required to shed water on the upper side.

**Other Types of Construction**—Corrugated Wire Glass Skylights of standard size can be applied equally well to curbs of concrete, steel or any other structural material or direct to sloping roofs made of wood, corrugated steel, corrugated asbestos, steel deck or any other type of roofing. The general construction of the skylight is the same, but the method of attaching to the roof varies. A Lupton C. W. G. folder showing each construction may be obtained on request. See also pages 114 to 117.

### Price List

A list of prices covering all standard sizes with white corrugated glass and Copper, Galvanized Steel or Aluminum fittings may be had on request.

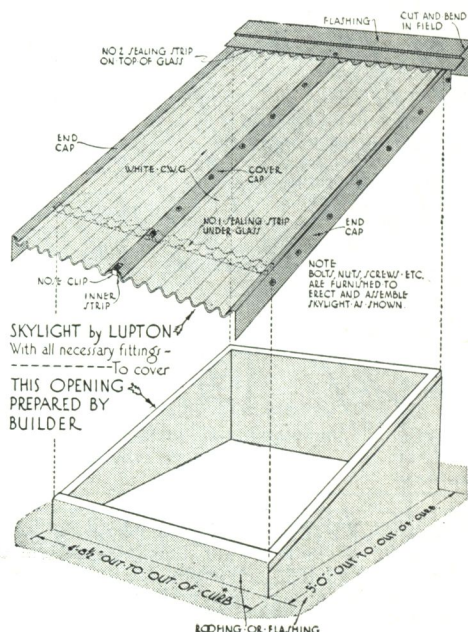
### Ordering

In ordering standard skylights specify quantity, catalogue number, kind of fittings, kind of glass (white or actinic) and pitch. (Although C. W. G. is weathertight on pitches as small as  $1\frac{1}{2}$  in. in 12 in., pitch will be assumed to be 6 in. in 12 in. unless definitely stated otherwise.)

It is also important to specify the type of roof construction, whether curbs are wood, concrete or steel, etc.

### Ventilators

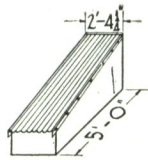
Ventilation may be provided if required, by means of windows, ventilators or fans.



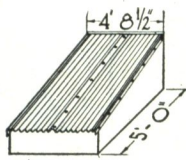


# STANDARD SIZES

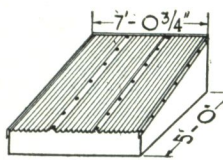
## C.W.G. SKYLIGHTS — TYPE A — ONE LIGHT HIGH



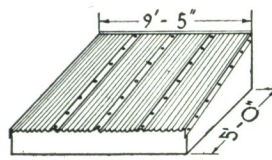
CAT. NO. A-1  
AREA 13.5  
SHIP. WT 95



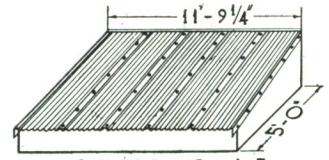
CAT. NO. A-2  
AREA 27.0  
SHIP. WT 189



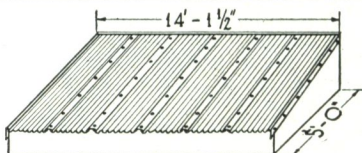
CAT. NO. A-3  
AREA 40.5  
SHIP. WT 284



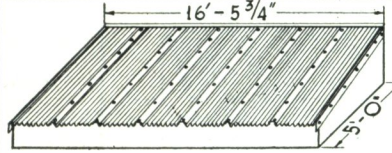
CAT. NO. A-4  
AREA 54.0  
SHIP. WT 378



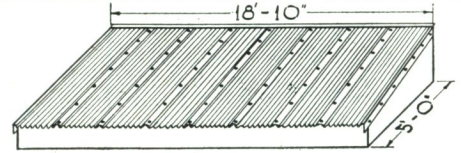
CATALOG NO. A-5  
AREA 67.5  
SHIP. WT. 473



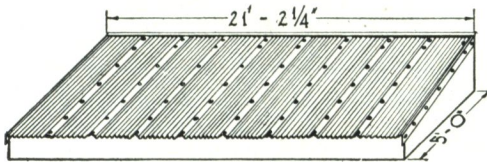
CATALOG NO. A-6  
AREA 81.0  
SHIP. WT. 568



CATALOG NO. A-7  
AREA 94.5  
SHIP. WT 662

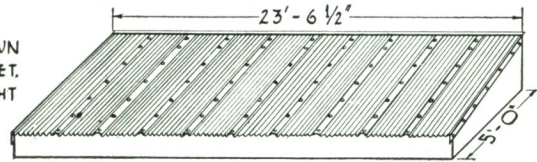


CATALOG NO. A-8  
AREA 108.0  
SHIP. WT. 756

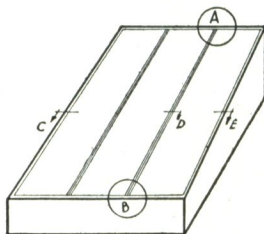


CATALOG NO. A-9  
AREA 121.5  
SHIP. WT. 851

NOTE  
AREA IS SHOWN  
IN SQUARE FEET.  
SHIPPING WEIGHT  
IS SHOWN IN  
POUNDS.



CATALOG NO. A-10  
AREA 135.0  
SHIP. WT. 945



TYPICAL SKYLIGHT

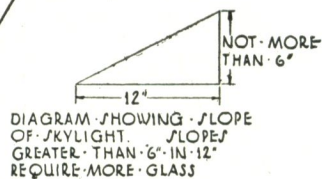
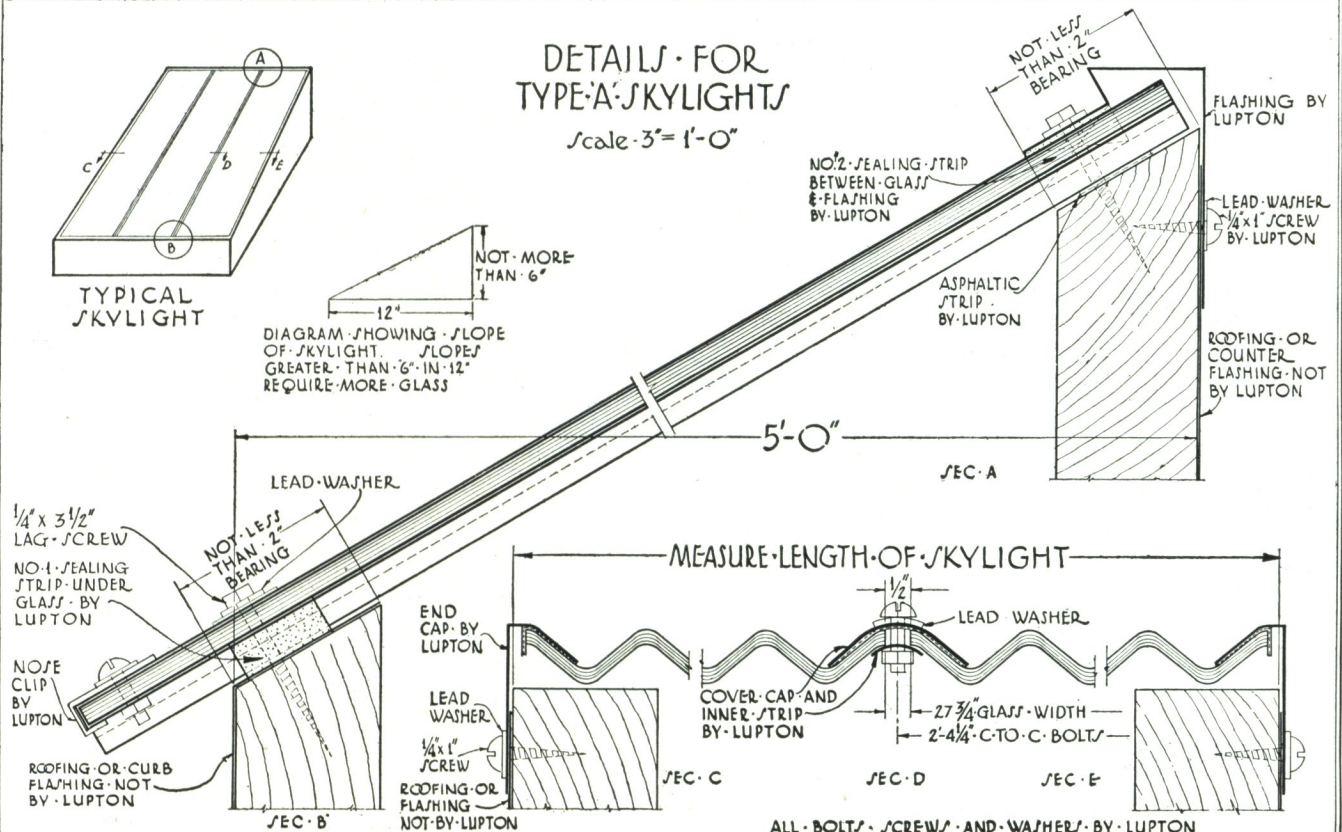


DIAGRAM SHOWING SLOPE  
OF SKYLIGHT. SLOPES  
GREATER THAN 6" IN 12"  
REQUIRE MORE GLASS

### DETAILS FOR TYPE A SKYLIGHTS

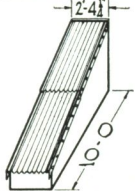
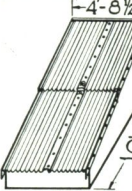
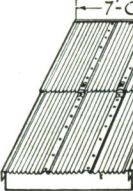
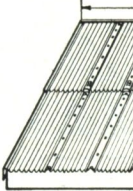
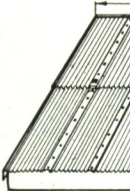
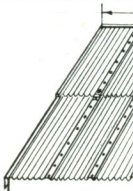
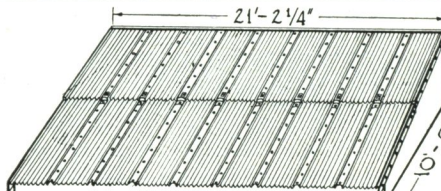
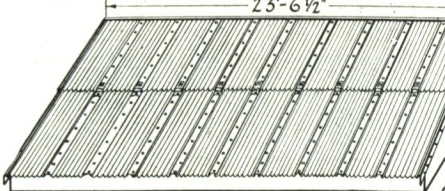
Scale 3" = 1'-0"

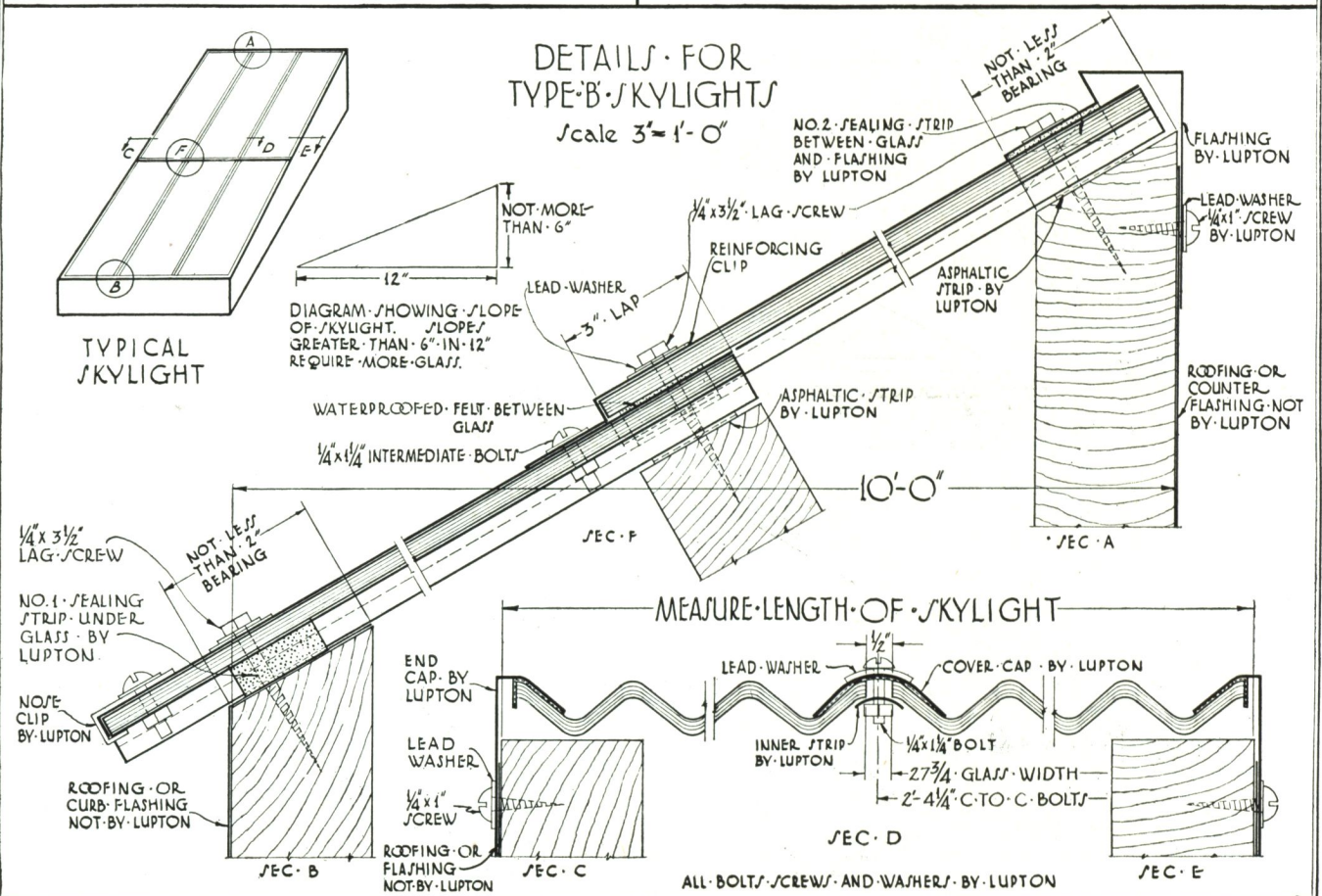




# STANDARD SIZES

## C.W.G. SKYLIGHTS — TYPE B — TWO LIGHTS HIGH

|                                                                                                                                        |                                                                                                                                       |                                                                                                                                          |                                                                                                                                      |                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
|  <p>CAT. NO. B-1<br/>AREA 27<br/>SHIP. WT. 190</p>    |  <p>CAT. NO. B-2<br/>AREA 54<br/>SHIP. WT. 378</p>   |  <p>CAT. NO. B-3<br/>AREA 81<br/>SHIP. WT. 568</p>      |  <p>CAT. NO. B-4<br/>AREA 108<br/>SHIP. WT. 756</p> |  <p>CAT. NO. B-5<br/>AREA 135<br/>SHIP. WT. 946</p> |
|  <p>CAT. NO. B-6<br/>AREA 162<br/>SHIP. WT. 1136</p>   |  <p>CAT. NO. B-7<br/>AREA 189<br/>SHIP. WT. 1324</p> |  <p>CAT. NO. B-8<br/>AREA 216<br/>SHIP. WT. 1512</p>   |                                                                                                                                      |                                                                                                                                        |
|  <p>CAT. NO. B-9<br/>AREA 243<br/>SHIP. WT. 1702</p> | <p>NOTE<br/>AREA IS SHOWN<br/>IN SQUARE FEET.<br/>SHIPPING-WEIGHT<br/>IS SHOWN IN<br/>POUNDS.</p>                                     |  <p>CAT. NO. B-10<br/>AREA 270<br/>SHIP. WT. 1890</p> |                                                                                                                                      |                                                                                                                                        |





# OTHER LUPTON PRODUCTS

## Not Described in Detail in This Catalogue

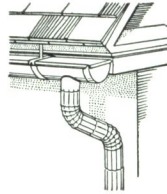
### LUPTON STEEL PARTITIONS

Two types of Steel Partitions are built by Lupton. One type combining good looks, finish, durability and interchangeable unit construction is ideal for the well dressed office, while another type less expensive, but possessing equal strength and flexibility, is especially suitable for factories, etc. Finished in a variety of colors to suit individual requirements.



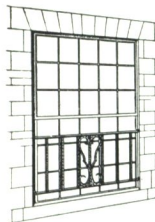
### SHEET METAL PRODUCTS

Lupton manufactures a complete line of Rain Gutters, Spouts, Elbows and all the things necessary to erect them. A recent addition to the line is the Art-Bead Gutter. This is the half-round trough with an attractively designed edge which gives class and distinction to the edge of roof and eaves. All articles are made of the highest grade materials.



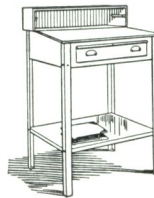
### LUPTON DETENTION WINDOWS

This window offers the unique advantages of a steel window plus the detention features but without the customary jail-like bars. The concealed spring balance permits the window to be opened within certain limits by the inmates but not far enough to let them escape. All mechanism is concealed. Windows can be supplied with locks and in this way entirely controlled by the attendant.



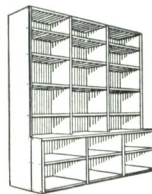
### STEEL FACTORY EQUIPMENT

A complete line of factory equipment is manufactured by Lupton. Some of the articles in this line are Work Benches, Shop Desks, Tool Cabinets, Work Tables and Bench Legs. Neat, strong, easily kept clean. Can readily be moved from place to place to take care of changing conditions. With reasonable care they will give service for many years.



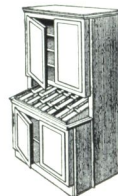
### LUPTON STEEL SHELVING

Lupton Steel Shelving solves the ordinary storage problems and can be readily adapted to take care of the most unusual requirements. Made in Open and Closed types for storage purposes and in Display Type for stores. All types greatly multiply storage space, cut maintenance costs, conserve floor space, and are adaptable to different layouts.



### HARDWARE STORE EQUIPMENT

The maximum in service, storage space, and display value. Display Tables, Cutlery Tables, Counters, Units combining display and storage, Screen Wire Racks, Platforms for heavy articles, Counter Merchandisers—anything needed to make a hardware store neat, inviting and brimming with sales appeal. Every piece of equipment is made according to N.R. H.A. standards, sturdily built and finished in attractive colors.



### TEXTILE MILL EQUIPMENT

Realizing the need for textile equipment that would reduce fire hazards, damage to goods from rough edges, and cost of maintenance, Lupton has produced a complete line for the textile mills. That it is successful is proven by the long list of prominent manufacturers that have installed Lupton equipment. This equipment greatly reduces the number of seconds and cuts overhead.



### STEEL PRINTING EQUIPMENT

This line includes Cut Cabinets, Job Jacket Files, Cut Storage Cabinets, Sorting Tables, Paper Racks, Retouched Drawings File and similar equipment. Made similar to our Steel Shelving. It can be taken down and re-erected without loss, is adjustable and may be added to as needed. Makes neat appearance, does not splinter and is fire-resisting.



The articles listed above and described in detail in the foregoing pages are in no sense a limit to Lupton's ability to serve in making other products of metal. For example, all the Stainless Steel Store Fronts and Windows on the lower floors and in the tower of the Chrysler Building were made by Lupton.

Lupton facilities are always available for making products to meet special requirements.



# LUPTON

## STEEL PRODUCTS

1931

Sales Representative

**DAVID LUPTON'S SONS C**

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# **LUPTON**

## **STEEL PRODUCTS**

**1931**

**Sales Representative**

**DAVID LUPTON'S SONS COMPANY**

**Allegheny Ave. & Tulip St.  
PHILADELPHIA**